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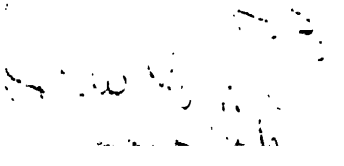
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TWENTIETH ANNUAL REPORT

OF THE

STATE BOARD OF HEALTH

OF

NEW YORK

FOR THE YEAR ENDING DECEMBER 31, 1899

TRANSMITTED TO THE LEGISLATURE FEBRUARY 15, 1900

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IN ASSEMBLY,

FEBRUARY 15, 1900.

TWENTIETH ANNUAL REPORT

OF THE

STATE BOARD OF HEALTH

STATE OF NEW YORK

EXECUTIVE CHAMBER

ALBANY, *February* 15, 1900

To the Legislature:

I have the honor to transmit herewith the twentieth annual report of the State Board of Health, the same being for the year 1899.

THEODORE ROOSEVELT

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REPORT

ALBANY, *February* 15, 1900

To Honorable THEODORE ROOSEVELT, *Governor of the State of New York*

Sir—The State Board of Health presents its 20th annual report, recording its work during the year 1899.

The long continued drought that prevailed so extensively during the summer and fall in many parts of the state, with its consequent lowering of the ground water, and simultaneous development of fevers widely diffused, have taxed the resources of many local boards of health, and appeals for aid and counsel to this Board have been numerous and urgent. These have been promptly responded to, and the local health authorities have been found alert and faithful in all such emergencies. Epidemics of smallpox, diphtheria and scarlet fever have been frequent and exacting, and have been fought by quarantine and disinfection, and many salutary lessons taught of the value of these safeguards and the disastrous consequences of their neglect.

SANITARY CONDITION OF THE STATE

During the year 123,000 deaths from all causes were reported, of which 121,821 were received in time to find record in the Monthly bulletin of the Board The death-rate for the year per 1000 population was 17.3, against an estimated average for the past 10 years of 17.2, that of 1898 being 18.

The deaths reported from the maritime district, with a population of 1675 per square mile, represent a death-rate of 18.4; that of the populous Hudson valley district, 17; the Mohawk valley district had a death-rate of 15.5, while in the rest of the state the rate was 14.

Infectious diseases—Twelve per cent of the deaths reported were from common infectious or zymotic diseases, against 17 per cent for the preceding 10 years and 13.6 per cent in 1898.

Compared with the average of the past 10 years there was a decrease this year in the mortality from all the ordinary zymotic diseases except from cerebro-spinal meningitis, from which there was a moderate increase.

Compared with 1898, the deaths from each of the diseases of this class were likewise fewer in number with the exception of diphtheria, from which there was a moderate increase.

The *infant mortality*, which is largely from zymotic diseases, and which caused this year 29 per cent of all deaths, was nearly 5000 less than the average of 10 years preceding, the actual number of deaths under five years of age being 35,386 against 40,100. There were likewise fewer deaths in early life in 1899 than in 1898.

Grippe, or epidemic influenza, although a zymotic disease, is not included among the above. It has recurred yearly since December, 1889, in the winter and early spring months, and is estimated this year to have caused 7000 deaths from January to April. An epidmic of moderate severity is prevailing again at the end of the year.

Typhoid fever, beyond a few localities where it is endemic, has had no special prevalence and the mortality is a little below the yearly average of 1650. It caused 1.3 per cent of the deaths, hav-

ing been relatively lowest in the maritime district and highest in the Hudson valley.

Diphtheria caused 2786 deaths, an increase of 170 from last year. But this number is far below the average of past years, which is about 5000. Diphtheria for a few years has been decreasing steadily from the high mortality of past years, which has sometimes almost reached 7000; it has however for the last 12 or 15 months shown a moderate upward tendency. In December of this year, a month in which the increase for the year commencing in autumn generally reaches its height, there were 330 deaths against 244 in December, 1898, and the number is just that of December, 1897, in which year there was a very marked fall from preceding years. The present increase is mainly in the maritime district, though the decrease is pretty largely distributed throughout the state. Relatively to other causes of death, 2.3 per cent of all deaths were from it against 2.2 in 1898; in 1894, 5.6 per cent; in 1895, 4 per cent; in 1896, 3.8 per cent, and in 1897, 3.5 per cent of all deaths were from diphtheria, showing its decrease since 1894 and its marked infrequency as compared with these earlier years.

Scarlet fever, measles and whooping-cough all have fewer deaths than the average and fewer than in 1898. These diseases have periods of increase and of decrease; they are now in the latter. A mild form of scarlet fever continues to prevail.

Diarrheal diseases caused fewer deaths than in any year of recent time, at least 2000 less than the average of 8500. In fact in certain years the number has nearly reached 10,000, but never so few as 6500 of 1899, or 5.3 per cent of the total mortality. The decrease has been uniform throughout the state but most marked in the maritime, where 5.5 per cent of the

deaths of the year were diarrheal against 8 per cent of previous years.

Smallpox—There began in May, 1898, an extraordinary epidemic of the disease, remarkable because it was so widespread and continued for so long a time, since it did not end until midsummer of 1899, but chiefly remarkable because of its mildness, so that the physicians failed to recognize it and out of more than 300 persons taken with it there was but a single death. The epidemic originated from a traveling theatrical troupe, which entered the state at Westfield, Chautauqua county, April 28, 1898, from Pennsylvania and prior to that from further south, apparently one of their number having contracted the disease at Charleston, W. Va. They had their private railroad cars and exhibited in their own tent.

The existence of smallpox among them was not discovered and their course arrested until May 21; meantime they had traveled extensively through the western half of the state and had exhibited at 20 towns, drawing people from the surrounding country to their exhibitions. Warning was sent to all this region and cases soon began to be reported. When recognized thus they were energetically cared for and speedily controlled, but unfortunately in not a few localities it failed of recognition and lasting for weeks, spread to surrounding towns, whence in turn it was passed on, eluding detection. It was most frequently mistaken for chickenpox; in one or two cases for contagious impetigo.

And inasmuch as the majority of the physicians of the rural parts of the state at least, and in part of the entire state, had seldom seen smallpox this was not remarkable, their inexperience bearing testimony to the protection afforded by vaccination and

the consequent infrequency of a disease once so common as to have fallen to the care of every practitioner of medicine.

But the chief reason for its escape of detection was the extraordinary deviation in the bulk of the cases from the common course of the disease, chiefly because it was so mild.

Cases began with a severe fever which lasted for three days; then the eruption appeared and developing soon from a papular eruption to a vesicular, it commonly aborted in this stage of the disease. After the eruption appeared the sick usually felt well enough to be about, and it was not uncommon for them to be out about the streets of the village. In fact families of the poorer class were found who never had a physician and were under no restriction of any sort. The only wonder is that so many escaped, but the infection was likewise mild and a moderate protection availed. The phenomena of the disease were not such as to elude the close observation of our expert in it generally, though occasional cases were hard to distinguish from chickenpox. There were at the same time cases of such typical character as to be readily recognizable. And it is noteworthy that in many cases, succeeding crops of cases in a locality showed a tendency to return to the common type as seen with us. But the earlier cases bred true to the original type.

Experience identical with ours in New York was met with in other states. Dr. William M. Welch, of Philadelphia, analyzing the outbreak in Pennsylvania, reports like characteristics. He further states that smallpox of an unusually mild type appeared among the negroes two or three years ago in the southern states, having features identical with ours, and it is his opinion that its propagation northward is traceable to its importation in cotton, the sick not infrequently, feeling little indisposed, being employed in gathering cotton and preparing it for market.

This Board finally placed a competent investigator in the field and thereby early detection of outbreaks was effected. With faithful co-operation on the part of local health officers the further spread was finally controlled; not, however, until it had lasted 15 months, had affected 45 localities in 14 counties, and 320 individuals, only one of whom died.

No doubt there were besides not a few undiscovered cases. The cost of it has been considerable to the town affected, in outlay for its suppression and in loss of business.

Nevertheless this state has escaped much more easily than others about us, where there has been not only a much wider distribution but in some states a continuance of the epidemic until the present time. We have been protected as is very evident by the immunity afforded by more general vaccination, there being in many places a faithful execution of the law requiring the vaccination of school children; there has also been an immense amount of vaccination done in the affected towns and in those threatened by proximity.

Subsequently to this outbreak, which ended by midsummer of 1899, there have been a number of sporadic outbreaks due to direct importation from an outside source and in no way connected with the epidemic. These have been usually limited to the single imported case or to two or three secondary ones. Of such, nine or ten in number, the last occurred in December, at Syracuse and Amsterdam, in each place a single case coming from without, and so far as known these are the only cases in the state at the end of the year, adding not more than 15 cases to those already mentioned, besides 12 cases at Niagara Falls in late summer, the origin of which was not discovered.

Note should be made in addition to these of an outbreak among negro laborers in brick-yards at Coeymans and Athens, 20 miles below Albany, where between 40 and 50 of these people directly infected from the south were sick with so mild a smallpox that in one of the yards they were allowed to continue their work, all being kept in quarantine; the disease did not get out into the neighboring community.

The entire number of cases of smallpox from the initiation of the epidemic in May, 1898, to the end of 1899 was about 400. This is not taking into account those which occurred in the city of New York, the charge of which is not within the Board's jurisdiction.

Consumption, which is attracting more attention of recent time by reason of the education the people is receiving as to its infectious character and the means for its control, with less variability than any other single disease or group of diseases, continues to cause about 11 per cent of all deaths. The average mortality from consumption each year for the past 10 years was 13,124, and this year the number was 13,412. Relatively to other deaths it was highest by far in the maritime district, 12.2 per cent of all deaths, and lowest, which is uniformly the case, in the southern tier district, 8.3 per cent.

The deaths from *acute respiratory diseases*, the group in which grippe largely finds record, was excessive, nearly 18,000 being from these diseases, almost 15 per cent of the total mortality. The average of 10 years, all of them years of greater or less prevalence and severity of grippe, has been 17,588.

Other local diseases were likewise increased in their mortality above the average.

Cancer is reported to have caused 4533 deaths, the average of the past 10 years having been 3408. Of 70,384 deaths in the maritime district, 2300 were from cancer—3.2 per cent—and of 51,436 deaths in the rest of the state, 2233 were from cancer—4.1 per cent).

Old age is attributed as the cause of 6000 deaths. This group is increased by the prevalence of grippe, from which many of advanced age die. The average of 10 years of deaths from old age was 5770.

It is apparent that the year has been one of unusual salubrity and more than commonly free from conditions which increase mortality.

The various departments of the Board's work will now be reviewed.

SEWERAGE AND SEWAGE DISPOSAL WORKS

During the past year plans for sewerage and drainage and sewage disposal plants, or amendments to existing sewers, have been presented to the Board and approved, for the following municipalities: Ballston Spa, Clinton, Coxsackie, Depew, Kinderhook, Liberty, Larchmont Manor, Lansingburg, New Rochelle, Oneida, Port Jervis, South Nyack, and Waverly.

Requests for information and advice have come from Goshen, Rotterdam and the town of East Greenbush, and it is thought that plans from all will be presented during the coming year for approval.

PUBLIC SUPPLIES OF POTABLE WATER

Rules and regulations have been prepared and adopted for the sanitary protection of the public supplies of potable water for the cities of Utica and Rome, in addition to which an investiga-

tion was made as to the pollution of the water supply of the village of Keeseville.

INVESTIGATIONS BY ORDER OF THE GOVERNOR

Residents of Saratoga Springs having complained of the alleged pollution of the waters of Saratoga lake, the Governor directed that an investigation of the complaint be made by the Board.

In compliance with orders received, a special committee of the Board made an extended investigation of the complaint, the report upon which will be found in the appendix.

The matter of the shale brick nuisance at Catskill has been before the Board again, a committee having made a further investigation to determine whether the same conditions existed as were found upon examination in 1898. The result of the latest investigation is printed in the appendix.

The Newtown creek nuisance having again been brought to the attention of the Board, the result of investigations made by the New York city department of health is printed in full in the appendix.

GENERAL INVESTIGATIONS

An epidemic of diphtheria prevailed during the early summer among the attendants at Willard state hospital, none of the 2000 inmates or patients having contracted the disease.

At the request of the medical superintendent, an expert from this Board was sent to the Willard hospital for the purpose of investigating as to the probable source of infection, and upon his report it was found that an attendant had contracted the disease in a neighboring city, having been sent there to bring a patient to the hospital.

Great credit is due to Dr. W. A. Macy, medical superintendent of the hospital, for the prompt and efficient measures adopted by him to control the disease.

The attention of the Board having been called to an epidemic of typhoid fever in the village of Silver Springs, the matter was thoroughly investigated, with the result that the cause of the epidemic was traced to the water supply, which was derived from wells, the waters of some that were examined showing gross pollution.

The board of health of the town of Middletown having requested the services of a representative of this Board, to investigate and advise as to certain unsanitary conditions at Griffins Corners, one of the consulting engineers of the Board was detailed for the duty, and upon investigation made by him, it was found that streams of potable water, also the wells, were being polluted by sewage from the dwellings at Griffins Corners.

While the normal population of the village is but 200, for two or three months in the summer the population is increased to some 3000 people, who either live in their own cottages or board at the homes of the native residents.

The board of health of the town as well as the residents of Griffins Corners, appreciating the great necessity for more sanitary conditions, have, upon recommendations made by this Board, decided to provide for the proper disposition of the sewage, that the public as well as the private supplies of potable water may be protected from pollution in the future.

Investigations of nuisances were made and recommendations looking to their abatement were given in the following cases:

Accumulation of pea vines from canning factory in town of Aurelius.

Inadequate sewering facilities in town of Stockport.

Nuisance in town of Schodack, caused by railroad embankment.

Overflow of West Canada creek in village of Herkimer.

Acetic acid works at North Tonawanda.

Imperfect drainage at Bronxville.

Eighteen Mile creek in city of Lockport.

Contaminated wells in city of Niagara Falls.

BARREN ISLAND

The season of 1899 at Barren island was notable mainly as being the test of the efficiency of the Arnold system of disposing of the garbage of the city of New York.

Extensive and costly sanitary improvements were completed previous to the beginning of the summer season, and the capacity was ample, 96 digesters being in service; a steam plant equal to any demand; press and drying rooms fully equipped.

The most important of the improvements was that for the control of the vapors escaping from the material after being taken from the digesters, which in previous years had been allowed to escape through the skylights and other openings into the outer air.

This improvement, which has been explained in detail in a previous report, was largely a success; the building was kept closed and none of the vapors escaped, except that which failed of condensation, which was very little, except when the supply of water was short, which was sometimes the case in the early part of the season before the new water supply system was completed.

This system, which was also a very costly improvement, was the next in importance; it insures an abundance of water in

every part of the plant at all times. All the condensers connected with the digesters were duplicated, so that if, for any reason, one should fail to do its work, connection could be made immediately with its substitute.

The most serious mishap of the season occurred in August, a strike among the men in the press rooms caused an interruption of the work and a considerable accumulation of garbage. When the difficulty was settled, the work was forced necessarily, two scows being often unloaded at one time; the material being in a state of partial decomposition was, of course, most offensive, and the result was what might have been expected.

Fortunately the wind at this time was almost continuously south of east, all of the nearby resorts thereby escaping; but the people traveling between Brooklyn and the Coney island resorts and those residing in that sparsely settled district were not so fortunate.

This is the first season since we have had an inspector on Barren island that no complaints have been received from Manhattan beach.

During the year a number of letters addressed generally to the Governor, complaining of foul odors from the island, have been referred to our inspector. Partly in consequence of these the inspector has made a number of visits to Arverne and Rockaway, interviewing several of the writers of these letters, but more especially others, visitors as well as residents of these places, and has found that aside from members of the "Anti-Barren island league," there was little or no complaint; even members of the "league" reluctantly admitted that the odors were not nearly as bad as in previous years.

The inspector has also frequently visited the Coney island resorts; Canarsie and Bergen beach, and found none to complain in any, except at Bergen beach, and very little complaint was made there, the nearest resort to Barren island.

It is believed to be a fact, that with prompt collection and delivery of garbage, with the present capacity and appliances, that the present method of disposal is adequate to the needs of the people of the city of New York.

While under certain atmospheric conditions the odors from this plant can be detected at the places from which these complaints are sent, it is so modified by the appliances before mentioned that it is scarcely noticeable, and is not in any way injurious or detrimental to health or comfort.

It is submitted that the fact that the thousands of well-to-do people who filled the hotels and boarding houses in these places remained there, many of them during the entire summer season, is a complete and final refutation of the charges made in these letters of complaint.

As to the other establishments on the island, nothing but praise can be mentioned; they are all well managed and in good sanitary condition.

CHEEKTOWAGA

There have been very few changes in the working of the different rendering and garbage works at Cheektowaga in the past year and we have had no complaints from the town as to their sanitary condition not being satisfactory. Every one of them is running in a smooth manner.

The Baynes garbage reduction works handled 50,746,091 pounds of garbage in the past year, which is a decrease compared with last year, owing to the fact that the city has changed

the method of collecting the garbage from paying a stated sum per ton for collection to a lump sum for a stated period, and in that way the contractors are not so particular in collecting as heretofore. The works expended $3,881.29 in new improvements during the past 12 months and have everything in good shape. The garbage wagons are covered the same as last year, and were cleaned and disinfected during the summer months.

The Milson rendering and fertilizer works have passed into the hands of a fertilizing trust and are doing quite an extensive business, having disposed of 15,247 dead animals in the past year and have expended in that time the sum of $17,038.10 for improvements. The works have been kept in a sanitary condition at all times.

The Fechter rendering and fertilizer works are run in about the same manner that they were last year, and have expended about $150 in improvements. They do very little business and are in as fair condition as can be expected.

The Betz bros. rendering works are in as good shape as the previous year and are running in a satisfactory manner.

CHEMICAL WORK OF THE BOARD

During the past year 395 analyses have been made in the laboratory of the Board; a number of special investigations have been conducted; many subjects of minor importance have received attention, and 25 samples are in process of analysis at the close of the year. The completed analyses include of

Foods and drugs	307 samples
Drinking waters	69 samples
Illuminating oils	12 samples
Miscellaneous articles	7 samples
Total	395 samples

The drinking waters examined were mainly received from local boards of health and were from the following localities: Albany, Ancram (seven samples), Batavia, Belmont, Bethlehem, Big Flats, Caledonia, Carthage, Clarkstown, Dansville (three samples), Deposit, Herkimer (two samples), Homer, Hornellsville, Hudson (three samples), Hyde Park (three samples), Keeseville (two samples), Lexington, Mamaroneck, Mayfield, Mechanicville, Mount Vernon (four samples), Middletown (five samples), Newark (two samples), Peekskill, Pittsford, Roslyn (three samples), Seneca Falls, Shortsville, Silver Springs (six samples), Sonyea, Turin, Union (two samples), Union Springs (two samples), Voorheesville, Whitehall (three samples). The analyses have included the usual determinations deemed sufficient for sanitary purposes, full information concerning all samples sent having been requested in all cases and generally supplied, and the information thus furnished concerning the source of the supply, its surroundings and possible contaminations, has been taken into consideration in construing the analytical results. Particulars concerning these samples, with a table of the analytical results, will be found in the report of the director.

The foods and drugs, of which 307 samples collected at various times and in different parts of the state have been examined, included sugar, coffee, tomato catsup, cream of tartar and olive oil, and ammonia water, acetanilid, bismuth sub-nitrate, chloroform, ether, compound spirit of ether, creosote, diluted acetic, hydrochloric and phosphoric acids, precipitated sulphur, quinine sulphate, reduced iron, resorcin, salol, seidlitz powders, solution of hydrogen di-oxide, spirit of nitrous ether, syrup of ferrous iodide, syrup of hydriodic acid, tincture of capsicum, iodine, opium and rhubarb, powdered rhubarb and distilled water. It

is believed that the examinations of foods and drugs which have been made during recent years, and the publicity which has been given to the results of these examinations, have had a very beneficial effect in correcting various errors, substitutions and adulterations, and has had a very important influence in improving the quality of many food articles, and a large number of the more important drugs and medicinal preparations on sale in this state.

The miscellaneous analyses made during the year included "Cocavena tablets," "Hair health" (contained lead), vanilla extract (chiefly coumarin), a disinfecting fluid, a sample of mouldy bread (with identification of the fungus), sediment from water pipes at Keeseville and the examination of a sample of "Bologna lunch food" for ptomaines. On August 16 the director visited North Tonawanda and inspected a nuisance at that place created by an acetic acid factory and reported on the same. On November 16 he appeared before the United States Senate committee on manufactures in New York city and gave evidence concerning food adulterations in this state and other matters pertinent to the inquiry. On December 13 he was present at the trial of a suit brought against the board of health of the city of Niagara Falls, for closing a well condemned by the board, in the county court at Lockport.

In December, 25 samples of coloring matters, found on sale in the stores, for use in food products, were collected, in accordance with the provisions of chapter 518 of the Laws of 1899, and these samples are now in process of analysis and a report upon the subject will soon be transmitted.

During the past four years the average annual expenditure for the chemical work of the Board has been $1,741.90, and while a

large amount of important work has been done, the small appropriations and limited facilities possessed by the Board being considered, it has been impossible to maintain any adequate inspection of the foods, drugs, fermented and spirituous liquors and illuminating oils on sale in the state as required by law; examine drinking waters and conduct the special investigations called for by the Legislature, nor can this work be carried on properly unless a very much larger appropriation is made for the purpose. Most of the matters of pressing importance have received some attention, but very much more ought to have been done, and might have been accomplished, had adequate provision been made for carrying on the work of the laboratory.

Full particulars concerning all analyses of foods, drugs, waters, oils and other articles examined will be found in the report of the director, with tables of analytical results.

TUBERCULOSIS

Since January 1, 1899, there have been tuberculin-tested under the supervision of the tuberculosis committee of the Board 5324 head of cattle, of which 577 were condemned and 213 destroyed. Over 2000 letters have been written by the committee and some 10,000 circulars of information and instruction distributed among owners of cattle in the state.

Numerous instances are known where the reading of the circulars has led the owners of herds to undertake measures that have purified their herds of all taint of tuberculous disease.

Because of the small appropriation available, the tuberculosis committee have been unable to adopt and enforce a systematic examination of the herds of the state, they have, however, had

constantly on hand a stock of tuberculin furnished by the State veterinary college at Ithaca, which they have furnished without charge to cattle owners who were willing to have their cattle tested at their own expense.

The report of the tuberculosis committee will be found in the appendix.

RECOMMENDATIONS

As this Board is constantly feeling the sanitary pulse of the state through some 1400 local organizations over which it exercises supervision, it is convinced that a great deal of good work could be accomplished were the Board equipped with a laboratory where competent chemists and bacteriologists could examine articles of food for dangerous adulterations, also a systematic examination of the drug supply of the state could be prosecuted.

In addition to the work above specified, a most desirable and life-saving duty could be performed by the establishment of a system for supplying the various local boards of health with sterilized tubes in cases of suspected diphtheria, that secretions from the throat of the patient may be sent to the state laboratory for microscopical examination, which is the only reliable test to determine the disappearance of the diphtheritic germ.

While the pollution of streams and small natural water courses by sewage, and, in many cases, refuse from manufactories, have been the causes of complaint from numerous municipalities of the state, it has been difficult for this department, with its small appropriation, to pursue such researches as it desires in order to determine whether or not the streams can be safely employed as sources of potable water supply.

In order that investigations may be carried on as to the occurrence of preventable sickness in localities especially afflicted, to

determine the operating causes, and to devise proper remedies for insanitary conditions discovered, the Board requires expert skill of the highest order, and would recommend that an additional appropriation be made of an amount sufficient to meet the urgent demands made upon it, and to inaugurate the establishment of a laboratory for the purposes outlined, and would respectfully suggest that the sum of $20,000 be added to the usual appropriation made for its use.

DANIEL LEWIS
President

BAXTER T. SMELZER
Secretary and executive officer

APPENDIX

TWENTIETH ANNUAL REPORT

OF THE

STATE BOARD OF HEALTH

APPENDIX

TWENTIETH ANNUAL REPORT

OF THE

STATE BOARD OF HEALTH

Financial Report from 1 October, 1898, to 1 October, 1899

SALARIES

1898.			
Nov.	1.	Salaries for October	$1,491 66
Dec.	1.	Salaries for November	1,616 66
1899.			
Jan.	1.	Salaries for December	1,516 68
Feb.	1.	Salaries for January	1,516 66
March	1.	Salaries for February	1,516 66
April	1.	Salaries for March	1,516 68
May	1.	Salaries for April	1,516 66
June	1.	Salaries for May	1,924 99
July	1.	Salaries for June	1,925 01
Aug.	1.	Salaries for July	1,925 00
Sept.	1.	Salaries for August	1,924 99
Oct.	1.	Salaries for September	1,925 01
			$20,316 66

TRAVELING EXPENSES

1898.			
Oct.	8.	F. E. Shaw	$42 27
Nov.	13.	S. Case Jones	99 25
	14.	Owen Cassidy	37 00
		F. W. Smith	78 29
	22.	F. E. Shaw	41 88
		C. W. Adams	17 95
	26.	Owen Cassidy	36 10
Dec.	5.	F. C. Curtis	99 50
	17.	B. T. Smelzer	183 15

1899.			
Jan	4.	F. E. Shaw	$46 88
		Owen Cassidy	69 54
Feb.	1.	S. Case Jones	70 72
March	21.	Daniel Lewis	96 97
		F. W. Smith	64 88
April	16.	F. C. Curtis	79 26
	20.	J. P. Martin	17 56
	27.	Owen Cassidy	134 35
May	1.	P. S. Hurd	42 49
		W. T. Jenkins	13 20
	13.	S. Case Jones	75 22
	18.	B. T. Smelzer	111 01
	20.	F. W. Smith	24 81
June	10.	S. Case Jones	78 87
	17.	B. T. Smelzer	67 68
	22.	E. A. Bond	6 28
July	7.	B. T. Smelzer	19 25
		P. S. Hurd	12 96
Aug.	18.	Daniel Lewis	45 10
		W. F. Willcox	30 28
		T. J. Bradley	46 22
		W. G. Tucker	11 80
		P. S. Hurd	4 07
Sept.	8.	T. J. Bradley	5 75
			$1,810 54

TEMPORARY AND EXPERT SERVICE

1898.			
Oct.	8.	University State of New York	$75 52
		Bender Hygienic Laboratory	35 00
		Olin H. Landreth	93 23
		J. P. Martin	115 32
Nov.	14.	Lucy S. Strong	70 00
	1.	A. K. Cole	104 00
		F. D. Beagle	104 00

1898.			
Nov.	17.	M. G. Franghiodi	$272 42
	26.	Olin H. Landreth	96 78
Dec.	1.	A. K. Cole	104 00
		F. D. Beagle	104 00
	17.	J. P. Martin	145 60
		J. P. Martin	131 59
		M. G. Franghiodi	119 61
	24.	M. G. Franghiodi	140 78
1899.			
Jan.	1.	A. K. Cole	108 00
		F. D. Beagle	108 00
Feb.	1.	A. K. Cole	104 00
		F. D. Beagle	104 00
March	1.	A. K. Cole	96 00
		F. D. Beagle	96 00
	21.	E. J. Lederle	26 50
April	1.	A. K. Cole	108 00
		F. D. Beagle	108 00
	20.	J. P. Martin	92 29
May	1.	A. K. Cole	100 00
		F. D. Beagle	100 00
June	1.	J. P. Martin	107 59
		J. P. Martin	388 72
	22.	Maurice Perkins	30 00
July	7.	James H. Stoller	40 00
Aug.	18.	J. P. Martin	363 10
		T. J. Bradley	125 00
Sept.	1.	T. J. Bradley	125 00
	25.	A. H. Rodgers	38 50
		Margaret Freeman	82 33
		Mabel Watson	63 33
		Florence Derby	63 33
		Kathryn Mattimore	63 33
			$4,352 87

PETTY CASH

1898.			
Oct.	8.	Western Union Telegraph Co.....	$3 00
		National Press Intelligence Co.....	4 70
Nov.	12.	Great Bear Spring Co.....	1 50
	14.	William E. Wehner.....	3 15
	17.	Bernard Schmidt, Jr.....	7 20
Dec.	17.	G. A. Birch.....	28 80
		Western Union Telegraph Co.....	3 00
1899.			
Jan.	4.	National Press Intelligence Co.....	9 05
	30.	Smith Premier Typewriter Co.....	1 50
Feb.	23.	C. M. Stuart.....	6 50
		W. K. Sanders.....	3 00
		Imperial Hotel	15 00
March	21.	Albany Building Co.....	7 31
	30.	Western Union Telegraph Co.....	3 00
April	16.	The Argus Co.....	6 50
		Ballard & Kirschbaum.....	2 00
May	1.	The Journal Co.....	6 50
		Conference State and Provisional Boards of Health	15 00
	13.	Harry W. Riggs.....	3 50
		National Press Intelligence Co.....	12 35
June	3.	W. W. Brinkerhoff.....	3 00
	22.	Albany District Telegraph Co.....	50 00
		C. H. Gross.....	12 50
		Rufus K. Palmer.....	21 75
July	7.	G. A. Birch.....	18 20
		Great Bear Spring Co.....	2 40
		C. M. Stuart.....	3 25
		National Press Intelligence Co.....	8 25
		Western Union Telegraph Co.....	3 00
Aug.	18.	Stuart G. Spier.....	3 50
Sept.	8.	J. G. Myers.....	7 00
		Albany News Co.....	1 00
		D. J. Keeshan.....	134 57
			$410 98

PRINTING

1898.			
Oct.	8.	Brandow Printing Co.....	$88 51
Nov.	14.	Brandow Printing Co.....	107 77
Dec.	17.	Brandow Printing Co.....	238 84
1899.			
Jan.	30.	Ganung & Parsons.....	20 00
Feb.	28.	Brandow Printing Co.....	161 10
		Brandow Printing Co.....	4 76
April	3.	Brandow Printing Co.....	84 67
May	1.	Brandow Printing Co.....	165 16
June	3.	Brandow Printing Co.....	92 64
	7.	D. L. Van Antwerp.....	3 50
Aug.	18.	Brandow Printing Co.....	79 64
Sept.	8.	Brandow Printing Co.....	143 16
			$1,189 75

TELEGRAPH AND TELEPHONE

1898.			
Oct.	8.	Western Union Telegraph Co.....	$2 73
		Hudson River Telephone Co.....	11 99
Nov.	14.	Western Union Telegraph Co.....	14 97
		Hudson River Telephone Co.....	12 04
Dec.	17.	Western Union Telegraph Co.....	17 99
		Postal Telegraph and Cable Co.....	1 93
		Hudson River Telephone Co.....	13 79
1899.			
Jan.	4.	New York and Pennsylvania Telephone Co.....	2 00
	30.	Western Union Telegraph Co.....	6 49
		Postal Telegraph and Cable Co.....	95
Feb.	23.	Western Union Telegraph Co.....	8 56
		Hudson River Telephone Co.....	13 64
March	21.	Western Union Telegraph Co.....	8 55
	30.	Hudson River Telephone Co.....	11 74
		Hudson River Telephone Co.....	13 93
April	16.	Western Union Telegraph Co.....	5 21

1899.			
May	1.	Hudson River Telephone Co.....	$17 09
	13.	Western Union Telegraph Co.....	6 80
June	3.	Hudson River Telephone Co.....	12 64
	22.	Western Union Telegraph Co.....	11 83
		Hudson River Telephone Co.....	12 39
July	7.	Hudson River Telephone Co.....	10 89
		Western Union Telegraph Co.....	5 75
Aug.	19.	Western Union Telegraph Co.....	8 02
		Hudson River Telephone Co.....	18 62
			$250 54

LIBRARY

1898.			
Oct.	8.	William Wood & Co.....	$5 00
Nov.	14.	John Crayton	4 74
		D. Van Nostrand Co.....	10 00
Dec.	5.	Banks Bros.....	5 50
	17.	Medical Review of Reviews.....	1 00
1899.			
Jan.	4.	The F. A. Davis Co.....	5 00
	30.	Journal Comparative Medicine.....	3 00
		The Sanitarian	4 00
Feb.	23.	John Crayton	4 74
		The Argus Co.....	7 50
March	21.	Albany News Co.....	1 50
April	16.	John Crayton	3 08
		Lemcke & Bueckner.....	13 50
		Engineering News	5 00
		Engineering Record	5 00
June	3.	Albany Medical Annals.....	1 00
		The F. A. Davis Co.....	5 00
	22.	Henry D. Keefer.....	5 00
		Sampson, Murdock & Co.....	3 00
Aug.	18.	Lea Brothers & Co.....	7 50
			$100 06

FURNITURE

1898.			
Nov.	26.	Library Bureau	$215 60
1899.			
June	22.	Wooster Furniture Co	18 00
July	7.	W. F. Antemann & Son	6 50
Aug.	18.	Eimer & Amend	59 16
		Eimer & Amend	23 89
		Emil Greiner	36 04
		Herman Kohlbusch	100 00
Sept.	8.	Whitall, Tatum & Co	30 55
			$489 74

TUBERCULOSIS

Salary of tuberculosis commissioners and expenses incurred in the employment of veterinarians for the testing and destruction of cattle affected with tuberculosis, from October 1, 1898 to October 1, 1899	$7,928 71

PLANS

FOR

SYSTEMS OF SEWERAGE

AND

SEWAGE DISPOSAL

BALLSTON SPA, N. Y.

Addition to sewer system

The original system of sewers of the village of Ballston Spa appears to have been constructed before sewer systems were required to be approved by the State Board of Health.

A plan for an addition to the system was approved by the Board on February 23, 1899, and appears as "Plate A" of this report.

CLINTON, N. Y.

Sewer extension

Plans for the original sewer system of the village of Clinton were approved by the State Board of Health on April 7, 1892.

Plans for an extension of the system on Mulbery street were approved by the State Board on September 22, 1899, and appear as "Plate B" in this report.

COXSACKIE, N. Y.

Original sewer plans

Plans for a separate system of sewerage and for sewage disposal works for the village of Coxsackie were approved by the State Board of Health on February 23, 1899.

These plans comprise:

First—A general sewer map of the village forming "Plate C" of this report.

Second—A sheet of street sewer profiles forming "Plate D" of this report.

Third—Three sheets of sewer details.

Fourth—Four sheets of plans for sewage disposal works, forming "Plates E" "F" "G" and "H", respectively of this report.

Fifth—A report on the proposed sewer system and a set of general specifications and an estimate of cost by the designing engineer, Geo. F. Chism, hereto appended.

Sixth—A set of printed specifications in detail on file in the office of the State Board, but not printed in this report.

DESIGNING ENGINEER'S REPORT

To the Board of Sewer Commissioners, Village of Coxsackie, N. Y.:

Gentlemen—I hand you herewith maps and plans for a system of sewers for the village of Coxsackie in accordance with your instructions.

The survey and maps, plans, estimate, etc., embrace the entire length of every street in the corporate limits, although it is unnecessary at the present time to construct the entire system. The surveys were made at the same time and in conjunction with the surveys for the street grade lines and therefore conform with each other.

As many of the streets have very sharp grades and as comparatively few have any pavement, much less a substantial one, it was deemed advisable to plan a separate system of sewers. A combined system is practically out of the question for your village as the additional cost of construction, maintenance, etc., would be prohibitory. In the separate system each part has a nearly uniform duty to perform and will be affected but slightly by severe storms and almost to an unnoticeable degree by showers.

The advisability of a double line of pipes, one on each side of the street, was considered but it was deemed that the circumstances did not warrant the additional outlay in your village.

The sewers are located in each street to the best advantage, considering that few of the streets have anything like a uniform

grade or location lines. Where the streets may eventually be straightened, or where a considerable saving could be made, the sewers were located somewhat out of the center line of the street, but in no case to a considerable degree or where they will interfere with the shade trees or sidewalks.

You are no doubt aware that the State Board of Health will not permit the sewage of your village to be discharged into the river or in fact into any of the potable waters of the state. I have therefore designed a sewage disposal system which I trust will meet with the approval of your board as well as with the State Board of Health.

The plans are for a system using electricity for its motive power, generated in the main plant and distributed to the several pumping plants and the auxiliary plant at the western portion of the village.

The sewers of the system in the lower streets of the village are of necessity so low that a radical departure has been made from common practice. The features governing the situation are the naturally low elevation of the principal streets in the business portion of the village as well as the annual freshets of the Hudson river overflowing to a considerable extent that portion naturally low.

To overcome these obstacles I have designed the system to be entirely independent of surface water, the buildings used for the disposal system to be so constructed as to have no openings for the admission of floor water and the complete control of all inlet and outlet openings.

The village covers an area of nearly or about four square miles but as two-thirds of this area is farm land it will not add to the duties of the system proposed. The population is popularly known to be about 3800 and is distributed in two districts known as Coxsackie and West Coxsackie. The system is designed upon calculations that will approximately provide for an increase of 200 per cent, or a population of about 11,500.

Although there are several lines of six-inch pipe the frequency and ample flushing provisions will insure an economical system to maintain.

The area of the entire system is peculiar to itself and is seldom equalled in any part of the state. The village proper (or Coxsackie Landing) is situated upon three ridges running at right angles to the river and completely dividing the village in such manner that flow by gravity from one section to another is practically impossible. It is therefore necessary to resort to pumping engines to conduct the raw sewage collected from each separate district to the main disposal works. The western extremity of the village is again divided into two distinct districts, but as one of these will probably not require sewer privileges for several years it will not be necessary to construct the same, but provision has however been made for the disposal of the sewage of the entire section embracing both districts without conducting the same to the other extremity of the village. This will be accomplished by installing a disposal plant on somewhat smaller proportions at the west of the village as shown upon the plans. The plans for the latter plant are so made that it may be equipped with an independent steam plant if desired, but it is recommended that the power be furnished by electrical transmission from the main plant at the lower village. In the latter case the additional room necessitated for engine and boiler will be dispensed with.

As the sewage is received at the main disposal works it is admitted into the intake tanks from which it is drawn into the mixers and thoroughly mixed with the chemicals and then pumped into the settling vats after which the effluent is drawn off and the sludge removed, pressed and prepared for use as a fuel if desired.

The entire plant is in duplicate and should be used alternately, except in case of accident.

The chemicals used should be lime and sulphate of alumina. The lime should be thoroughly slaked and mixed with sufficient water to make it of the consistency of thick cream. The sulphate of alumina may be prepared by mixing one part of common sulphuric acid with one part of water and adding two parts of clay. This mixture should be allowed to stand in a warm place until white appearance forms upon its surface. One pound of this mixture is to be added to each 100 gallons of raw sewage and thor-

oughly mixed after which one-quarter pound of the lime solution should be mixed with it and the whole allowed to stand in one of the settling vats for at least 24 hours. During this time the other of the set of vats may be in use. After the first lot of treated sewage has been allowed to rest for 24 hours the effluent is to be removed and the sludge remaining in the bottom of the settling vats should be scraped up and placed in the sludge press, the vat cleaned and prepared for the next charge. The cost of chemicals is estimated to be about $7 per 1,000,000 gallons and as the village will hardly be called upon to dispose of 250,000 gallons per day within the next 20 years the cost can safely be said to be within $1.80 per day for chemicals.

The sub-station or disposal works designed for the West village is a combination of chemical disposition and filter beds. The further precaution of filtering the effluent is adopted on account of the frequency with which cattle water at the stream into which it is designed to discharge from the disposal works.

The pumping stations are designed with reference to high water and freshets similar to the main disposal works and may be operated automatically by electrically-driven automatically-governed pumping engines. They will probably need inspection once in 12 hours.

I also hand you herewith a printed form of specifications for sewers which I do not think can be improved upon and with the slight changes that may appear necessary I would recommend the adoption of that form.

I also hand you herewith a copy of general specifications for the disposal works and pumping plants.

Awaiting your further pleasure, I remain,

Respectfully yours,

GEORGE F. CHISM,

Civil engineer

General specifications for disposal works and pumping stations

1. The buildings are to be of pressed brick with sandstone trimmings and slate or terra-cotta roofing.

2. The foundations shall be of suitable stone to be secured in the neighborhood and shall be of rubble masonry above the ground line and extend full up to the top of water table shown in the plans.

3. The earth shall be excavated for foundations until a substantial bottom has been reached, and if such is not secured within a reasonable depth the engineer may order that piles be driven to receive the foundation. In the latter plan drawings and instructions will be furnished by the engineer when needed.

4. The roofs shall be of timber trussing, substantial and strong and shall be lined with a moisture-proof lining.

5. Flooring in engine rooms and pump rooms shall be double, the under flooring may be of two-inch hemlock and must be laid diagonally to the surface flooring which shall be of Georgia pine.

6. Flooring and side walls of all wells and vats to be of concrete plastered with at least one-half inch of the best Portland cement.

7. Sizes of various piping is shown upon the plans and may only be altered by order of the engineer.

8. The embankments of filter beds shall have a core of puddled clay of such size as may hereafter be ordered by the engineer in charge of the work.

9. All surface vegetation, soil, etc., is to be removed from the site of the filter beds to the proper depth before the same shall be filled with the sand filling. After the bottoms of the filter beds have been prepared under direction of engineer in charge of the work, they shall be filled to a depth of not less than three feet with clean coarse mortar sand.

10. The main disposal plant is to be equipped with two direct-coupled electric generators of a capacity of 50 kilo-watts each, three 50-horse-power return tubular boilers, one feed water heater and purifier, two boiler supply pumps of ample capacity each to supply two of the boilers when running at nominal load, each boiler to be fitted with an approved inspirator or injector, all necessary piping and wiring, one switch board complete with amperemeter, voltmeter, rheostats, switches, etc.; each pump, press, mixer, etc., being equipped with independent electric motor

with starting rheostat and controlling switch; one sludge press, one extra lift pump for discharging effluent during high water in river, two sewage pumps, two chemical mixers, with all necessary tanks, etc. The building is to be wired for electric illumination and piped for steam heat.

11. The sub-station or disposal plant at the west end of the village shall be fitted with chemical ejector, mixer, pumping machinery, etc., each machine to be driven by a direct connected electric motor, the building to be wired for electric illumination and heating; there may also be required a sludge press.

12. Each pumping station shall be equipped with one direct connected electrically driven pump of such size and capacity as may be required by the engineer in charge of the work.

13. Each pumping plant shall also be equipped with the necessary electric lighting and heating apparatus.

14. There shall also be a telephone circuit connecting each pumping plant, sub-station and main disposal plant in such manner that communication can be established between any two of them at will from any one of such two.

15. All work is to be done to the entire satisfaction of the engineer in charge of the work and according to plans and detailed drawings that may from time to time be furnished by him.

GEORGE S. CHISM,
Civil engineer

ESTIMATE OF COST OF CONSTRUCTING SEWER SYSTEM, COXSACKIE, N. Y.

1,808	feet 12-inch pipe sewer at	$1.00.....	$1,808 00
13,700	" 10 " " " "	.90.....	12,330 00
39,118	" 8 " " " "	.80.....	31,294 00
17,630	" 6 " " " "	.75.....	12,222 50
46	manholes	" 35.00.....	1,610 00
1	drop manhole	" 40.00.....	40 00
45	flush tanks	" 68.00 (average)..	3,060 00
129	lamp holes	" 7.50.....	967 50
7,593	feet 6-inch pressure pipe cast-iron at	$1.10...	8,352 30

Sewage disposal plant including all machinery, buildings, etc.	$18,000 00
Sub-station disposal plant complete including machinery, building, filter beds, etc.	12,000 00
Two complete pumping stations including machinery, building, etc.	4,000 00
Engineering, advertising, superintendence, etc.	5,000 00
	$110,684 70

GEO. F. CHISM,
Civil engineer

The detailed printed specifications referred to in the report of the engineer are on file in the office of the State Board of Health but are not printed herewith.

DEPEW, N. Y.

Changes in sewer system

The original plans for the sewer system of the village of Depew were approved by the State Board of Health on June 30, 1896, and appear in the 17th annual report. Certain changes in the original plans were approved by the Board on December 31, 1896, and on April 28, 1897, and appear in the 18th annual report, and further changes were approved on January 28, 1898, and appear in the 19th annual report.

On February 23, 1899, the State Board of Health approved plans for changes of sewer plans principally made necessary by alterations in street locations and re-subdivisions. These changes are shown on "Plate I" and "Plate J" and are described on the appended reports by the engineer.

BUFFALO, N. Y., *May* 17, 1897

Messrs. BURKHARDT BROS., *Real Estate Exchange, Buffalo:*

Gentlemen—We send you herewith two prints and tracing of maps and profiles showing changes proposed by you of sewers in Burkhardt avenue, Depew, N. Y., from Ellicott road to Scapaquada creek and sewer in Ellicott road from Falcon street to Burkhardt. Said changes consist in moving the 15-inch main as proposed in center of Burkhardt to the east side and constructing an 8-inch lateral on the west side.

The 15-inch sewer in Burkhardt and Ellicott will be the same in original plan as this, whereas the only additional cost will be for the 8-inch sewer.

Estimated Cost

	Size	Length	Side	Av. Cut	M.H	Cost
Ellicott road:						
Falcon to Burkhardt	15"	275	N.	21.6	3	$650
Burkhardt	15"	1,499	E.	17.50	7	1,918
Burkhardt	8"	1,463	W.	11	6	1,035
Maximum cost						$3,503
Minimum cost						3,200

Yours truly,

GUTHRIE & ROCKWOOD

DEPEW, N. Y., *November* 10, 1898

To the Honorable the Board of Sewer Commissioners of the Village of Depew, N. Y.:

Gentlemen—I herewith submit amended plans and estimates for lateral sewers in the territory at the northwest corner of Transit road and Ellicott road, subdivision No. 5, of the Depew improvement company's lands, which were necessitated by rearrangement of the streets in that section, by their last subdivision.

SCALE

For greater ease in comparing them with the other plans now on file, I have adopted the same scale to which those plans are drawn, and otherwise adhered to a similar form and structure.

OUTLET

An attempt was made to find an outlet for this section near its northwest corner, which is its lowest ground, but due to the adverse elevation, size and grade of the sewer in the Buffalo, and Depew boulevard, as planned, the main sewer in the Ellicott road was found to be the only possible outlet.

In connection with this, I may say that it seems like an unfortunate choice to locate the main sewer in Ellicott road rather than the boulevard, which is lower than the former.

GRADES

While somewhat light, the grades given the sewers are the maximum that the conditions will allow and are equal to the grades of the sewers hereby replaced. In some of the streets it might appear that a steeper grade might have been adopted; but a more careful examination will show that this would result in running a sewer of a given size and grade into another of the same size but of a lighter grade which is not at all to be recommended.

SIZES

The sizes adopted are sufficient to carry off all the sewage of the section on a basis of five to a house, and 80 gallons per day per capita.

JUNCTIONS

Where possible the junctions of the various sewers have been so planned as to offer the least resistance to the current, but the necessity of locating the sewers close to the street lines precluded the possibility of avoiding all right-angle junctions. Where these do occur, I have given the curved invert in the junction manhole a drop of one-tenth of a foot to overcome the retarding influence of the objectionable angle.

DEPTHS

The depths of the sewers are generally speaking sufficient to accommodate cellars of ordinary depth and allow a sufficient fall in the side sewers to the houses. In the northwest section the

sewer inverts do not lay as deep as might be desired, but in that section the proximity of the Scajaquada creek and its height at flood times would alone necessitate the raising of the surface of the ground there and forbid the construction of deep cellars.

FLUSHING

I have provided flush tanks at all dead ends, as I deem sufficient and frequent flushing a necessity in view of the flatness of the grades.

Very respectfully, etc.,

ALBERT KRAUSE,

Resident engineer

Estimated cost of sewers in subdivision No. 5, of Depew improvement company's lands, Depew, N. Y.

STREET	Side of street.	From	To	Size of tile	Length	Average cut	No. "Y" branches	No. manholes	No. flush tanks	Estimated minimum cost	Estimated maximum cost
Harvard	S.	Transit	West 2d.	8"	579.5	11.15	7	2	0	$ 364.61	$ 397.76
Harvard	N.	Transit	Circle	8"	750.	11.10	12	3	1	541.81	591.07
Harvard	S.	West 6th	West 3d.	8"	940.	8.35	15	3	1	545.26	594.83
Harvard	N.	West 6th	Circle	8"	1,059.	7.95	22	4	1	617.55	673.69
Harvard	S.	West 6th	Lehigh	8"	606.8	7.05	10	2	0	296.55	323.51
Harvard	N.	West 6th	Lehigh	8"	547.	6.55	12	2	1	321.29	350.50
Princeton	W.	Ellicott	West 6th	12"	194.8	20.15	5	1	0	398.59	434.83
Princeton	W.	West 3rd	West 6th	8"	999.82	9.25	20	4	1	629.59	686.83
Princeton	E.	West 3d	685 feet south of	8"	735.	9.95	17	3	1	496.99	542.17
Princeton	E.	West 3d	205 feet north of	8"	205.	10.65	5	1	1	193.00	210.55
Centre	N.	West 6th	Lehigh	8"	474.6	10.95	9	3	1	441.45	481.58
Centre	S.	West 6th	Lehigh	8"	448.	11.15	9	2	1	354.19	386.39
West 1st	E.	Harvard	153 feet south of	8"	159.	11.75	1	1	1	182.26	198.83
West 1st	W.	Harvard	208 feet south of	8"	228.8	11.85	2	2	1	259.80	283.42
West 2d.	E.	Harvard	446 feet south of	8"	472.	8.15	6	2	1	314.39	342.97
West 2d.	W.	Circle	South of	8"	557.8	7.95	10	3	1	379.92	414.46
West 3d	E.	Ellicott	Princeton	8"	559.8	16.25	8	3	0	849.75	927.00
West 3d	W.	Ellicott	244 feet north of	8"	254.	14.83	4	1	1	359.12	391.77
West 4th	W.	Harvard	Princeton	8"	319.	8.25	5	1	1	219.41	239.36
West 5th	E.	Harvard	354 feet south of	8"	376.6	8.85	6	2	1	282.12	307.77
West 5th	W.	Harvard	Princeton	8"	560.	9.15	11	2	1	367.98	401.43
West 6th	E.	240 feet north of Princeton	187 feet south of Harvard	8"	501.6	14.08	12	3	1	605.77	660.84
West 6th	W.	Princeton	Harvard	12"	961.	14.25	10	4	0	1,184.41	1,292.08
West 7th	E.	Centre	Lehigh	8"	493.	11.35	10	2	1	380.17	414.73
West 7th	W.	Centre	Lehigh	8"	429.6	11.15	8	2	1	345.17	376.56
Lehigh	W.	Harvard	Ellicott	8"	1,009.	5.85	25	4	1	503.53	549.31
Lehigh	W.	Harvard	North of	8"	200.	3.95	6	1	1	134.94	147.21
Total length					14,640.72						
Totals of minimum and maximum costs, respectively										$11,569.62	$12,621.44

Another change was also approved by the State Board on December 13, 1899, and is shown on "Plate K" of this report.

KINDERHOOK, N. Y.

Original sewer plans

Plans for a separate system of sewers for the village of Kinderhook were approved by the State Board of Health on June 30, 1899.

The plans submitted comprise:

First—A contoured sewer map of the village forming "Plate L" of this report.

Second—A sheet of street sewer profiles and sewer details forming "Plate M" of this report.

Third—A report on the system by the designing engineer, hereto appended.

Fourth—A set of specifications for construction, on file in the office of the State Board, but not printed herein.

The report of the designing engineer follows:

NEW YORK, *June*, 1899

To the Board of Trustees of the Village of Kinderhook, N. Y.:

Gentlemen—I herewith submit plans and estimate of cost of a system of sewers for the village of Kinderhook, N. Y.

The village is situated on the westerly side of Kinderhook creek, partly on the slope rising from the creek and partly on the higher nearly level ground on top of the slope. Kinderhook creek is a rapid stream, entering the Hudson river at Stockport about seven and three-quarter miles below the village of Kinderhook. The nearest village below Kinderhook is Stuyvesant Falls, about three miles distant. The total fall of the stream in the seven and three-quarter miles to its junction with the Hud-

son exceeds 200 feet. The stream is a succession of rapids and falls, which at Stuyvesant Falls and Chittenden Falls have a height of 30 to 35 feet.

The stream is used extensively for power development, but not for potable purposes. The drainage area of the stream above Kinderhook exceeds 200 square miles. Assuming a minimum flow of 17,000 cubic feet per day, per square mile of drainage area for the dry season would give a total flow or 25,500,000 gallons per day, which amount would be safely relied on.

The outfall proposed by me is below the bridge over creek on Hudson street. The creek at this point is very deep, which makes it possible to have the outfall always covered with water; about six hundred feet below the proposed outlet the stream runs rapidly down a steep grade, this tending to distribute the sewage throughout the whole volume of the stream and by aeration purifying it.

A disposal works could, if it is deemed necessary at some future time, be built in this vicinity. The approximate location of the disposal works is shown by dotted lines on the plan. No detailed plans have as yet been prepared for a disposal works, as in my opinion there will be no necessity for one for many years.

The present population of the village is about 1000, with a possible increase to 3000 in 30 years under favorable conditions.

The sizes of the sewers have been calculated on the basis of a population of 3000, allowing 100 gallons of sewage per capita, and assuming that about one-quarter of the roof water of the village is permitted to run into the sewer.

No detailed calculations have been made as to the cost of a combined sewerage system, as the cost of one would be out of proportion to the present and future needs of the village. Owing to the very slight grades of most of the village streets a sewer of very large diameter would have to be employed in order to carry off the storm water; this storm flow being intermittent could not be relied on to flush the sewers properly,

and the cost of maintenance and keeping the sewer free from sediment where a comparatively small stream is distributed over a large area would be considerable.

I herewith submit copies of maps, profiles, specifications and estimated cost of a sewer system, primarily designed to dispose of house sewerage.

On the general plan the contour lines for every two feet elevation above the creek at the bridge are shown, the proposed lines of sewers are shown by dotted lines, the direction of flow indicated by arrows, also the approximate position of manholes and flush tanks. The sizes of sewers are also indicated and the minimum grades. The proposed sewers would provide for the present and future needs of a village up to a population of 3000. A few houses on Chatham avenue are not included in the system on account of their low elevation. The houses being in the nature of farm houses, with ample grounds around them would have all needful facilities for disposing their sewage. To make sewerage provisions for them would require an independent pipe partly over private grounds over 4000 feet in length in order to connect with the proposed outlet and possibly disposal plant. The only other portion unprovided for is Board street west of Vanderpoel avenue. The same conditions as to disposal of sewage prevail in this case as in the former. There is quite a down grade westerly from Vanderpoel avenue, and in order to extend the sewer 500 feet westerly along Board street would increase the depth of sewer on Board street, Church street, and Sylvester lane by nearly five feet.

The proposed sewers are expected to drain all cellars with the exception at the westerly end of Board street, where the sewer comes within four feet of the surface. It is the present intention to place a flush tank at this point and convert it into a manhole where the sewer along Vanderpoel avenue becomes a necessity.

The flush tank to be employed is of the Van Franken type, a diameter of syphon of six inches and a depth of reservoir from 20 to 30 inches. The discharging capacity is about 56

cubic feet per minute, or somewhat more than the carrying capacity of an 8-inch pipe laid to a grade of four inches in 100 feet, the minimum grade proposed in the system.

The lines of 6-inch sewers along Railroad lane, Maiden lane and Risdorph street are to be supplied with flush tanks having a 5-inch syphon.

Street profiles indicating proposed grades are shown on separate sheet. Surface elevations are shown at all important points, also proposed elevations of invert where grade does not exceed four inches in 100 feet.

Sections of flush tank, manhole and lamphole are also shown.

The plan provides for:

11,640 cubic yards of excavations.
1295 linear feet of 6-inch vitrified pipe.
8291 linear feet of 8-inch vitrified pipe.
3890 linear feet of 10-inch vitrified pipe.
1025 linear feet of 18-inch vitrified pipe.
280 Y branches.
8 flush tanks.
34 manholes.
4 lampholes.
72 feet 18-inch cast iron pipe for outlet.

The estimated cost of the above work (Vanderpoel avenue sewer not being included in the above estimate of quantities) is $15,000 without a disposal works. The estimated cost of disposal works is $3000.

Respectfully submitted,

EBERHARD J. WULFF, C. E.

LIBERTY, N. Y.

Substitution of sewer plans

Original plans for a sewer system for the village of Liberty were approved by the State Board of Health on September 18, 1895, and appear in the 16th annual report. The system was never built and a plan substantially the same as the original plan but with a few extensions was submitted to the State Board of Health in 1899 and was approved on February 23, 1899. This general plan represented by a contoured sewer map of the village is shown on "Plate N" of this report. Subsequently local complaints of the location of the filter beds shown on "Plate N" having been made the board of sewer commissioners applied for permission to change the location and at the same time to modify the general system of disposal from sand filtration to that of a preliminary septic treatment with subsequent filtration through coke. Plans for this modification were approved by the State Board of Health on September 22, 1899, and are represented by "Plate O" and "Plate P" and the appended descriptive report of the designing engineers, which follows:

To the Honorable the Sewer Commissioners of the Village of Liberty, N. Y.:

Gentlemen—On September 18, 1895, the Honorable the State Board of Health of New York approved map and plans for a system of sewerage for Liberty, which plans, etc., were prepared by us, and recommended by your honorable body. No public action, however, was taken by the tax-payers of Liberty until March last, when by a large majority you were authorized to proceed with the construction of the system of sewers, the general sentiment of the people being, however, that the sewer should be extended three-quarters of a mile further down the Mongaup valley and the filter beds be located there instead of at the originally selected site.

In accordance with your instructions in this direction we have made surveys of the new extension and find everything feasible.

Commencing on Mill street at the point where the line of the original filter bed area entered the lands of Mr. Gildersleeve, the new line follows Mill street and the public road to Liberty Falls, to a point about opposite the house of Chauncey Countryman, where it deflects to the right and crosses the lands of Mr. Countryman and lands of the estate of Gerow and of Wm. Bartholomew to lands of Jacob Hendrickson, below the mill dam, where the new filter bed will be located.

Since we prepared the plans for the sewer system in 1895, there has been so much study and investigation, and so many and marked advances have been made in the matter of purification of sewage, that we have decided to recommend to you the septic tank system of purification, based on the one so signally successful at Exeter, England, and also in Champaign, Ill., and other places in this country.

The following is a very general description of the septic tank and its adjuncts, viz.: The sewage as it comes from the village to the septic tank and the filter beds enters a small chamber or catch basin (made double for the purpose of occasional examination and cleaning, if necessary, but intended to be used usually as one) where any heavy matter in suspension may be caught and retained, and where the current may be broken up and somewhat retarded. The sewage then enters the septic tank (made double for the same reasons as given above for the catch basin, and also intended to be used ordinarily as one chamber) through inlets near the bottom of the septic tank. The latter is to be as nearly air and light tight as possible, having an arched cover and concrete bottom. Near the outlet into a shallow open conveyor or trough through which the sewage is directed to each filter bed, in turn, are baffle-boards designed to break up and destroy any currents in the sewage. In the roof of the tank will be the necessary manholes and other appurtenances. The sewage, on leaving the septic tank, falls over a stone coping into shallow open conveyors or carriers by which it is directed, as

above stated, in turn up on each of the four filters, that being the number deemed sufficient for your requirements for many years to come. The flow of sewage into the filters as well as the discharge of filtrate from each bed will be controlled automatically by the proper tipping pans and gearing so that constant supervision will not be necessary.

The filter beds will be constructed as follows: After having properly graded the area to be occupied by the beds, three-inch tiling in rows about three feet apart will be laid, each row terminating in a box drain which discharges into a well outside of the walls of the beds and between the two sets of beds. After the three-inch under drains have been laid, the beds will be filled to within a few inches of the top of walls with broken coke or clinker, broken so as to pass through a screen of one-inch mesh for the first one and one-half feet, and fine enough to pass only through one-half-inch screen for the remainder or upper half of bed.

As each bed fills, the filtrate rises in its discharging well and, as it nears the top of the well, flows through small pipes into tipping pans, to which gearing connected with the inlet and outlet valves is attached, the function of the tipping pans and gearing being to open the discharging valve of the bed just filled, to close the inlet valves to sewer and to close the discharging valve and open the inlet valve of its neighbor. After the filtrate has been discharged from each bed it flows on to a fine grain filter area situated outside of the walls of the filter beds and lying between them and the Mongaup river.

The population of Liberty normally is about 1800, but the filter plant has been designed on a basis of 10,000 population.

The total cost of the entire system as now designed will not exceed $36,500.

Respectfully,
WISE & WATSON,
Civil and consulting engineers

LARCHMONT MANOR, N. Y.

Change in location of sewer outlet

Original plans for a complete system of sewers for the village of Larchmont Manor were submitted to the State Board of Health in April, 1898, and with the exception of the location of the outlet was approved on May 21, 1898, and appear in the 19th annual report of this Board. Plans for a different location of the outlet sewer were submitted to the State Board and approved on February 23, 1899, and comprise:

First—A map of the village of Larchmont Manor without contours showing the location of sewers not yet constructed, forming "Plate Q" of this report.

Second—A tracing of U. S. Government chart of Larchmont Manor and harbor showing new location of sewer outlet and forming "Plate R" of this report.

Third—A profile sheet of the new outlet sewer showing general manner of supporting the different portions forming "Plate S" of this report.

Fourth—A set of details of pile support for the sewer across submerged portions of the line, forming "Plate T" of this report.

Fifth—A sheet of details of special manholes to be used, on file in the office of the Board.

Sixth—A descriptive report of the new location of the outlet by the designing engineer, hereto appended.

Seventh—Blank forms for engineer's estimate for comparison of bids, agreement, specifications, and bond, on file.

Eighth—Blank form of proposal and bondsman's guarantee, on file but not appended hereto.

DESIGNING ENGINEER'S REPORT ON NEW LOCATION

To the Honorable State Board of Health of the State of New York:

Report of L. E. Van Etten, C. E., in regard to sewers at Larchmont Manor, Westchester county, N. Y.

Plans, maps, profiles, specifications, report, etc., were presented to your Honorable Board in the above matter May, 1898.

On May 21 the Board approved of the street profiles as proposed to be sewered, and the present plans do not alter the profiles of these streets, except as shown on new profiles, making a slight change on the Boston road, in order to meet new proposed outlet sewer.

The present enclosed plans, specifications, etc., are made upon an entirely new line of outlet, and it is to this new outlet line your attention is more particularly called. The old outlet line, started from the Boston post road at Sheldon avenue and ran across the salt meadows and was to empty, temporarily, inside the gut and inside Cedar island, and eventually would probably have been carried out into the harbor. This outlet line was in those plans called Section 2.

Nothing has as yet been done in construction, either of the old outlet or sewers in streets, as shown on those plans.

It is the intention of the board of trustees, as early as possible this year, to construct the following sewers, viz.:

Boston road, from outlet sewer to flush tank.

Chatsworth avenue, from Boston road to Addison.

Addison street and Collins avenue, from Boston road to Addison.

All of which profiles were approved May 21, 1898.

It is also the intention to construct the outlet at the same time, if same meets the approval of your Honorable Board. The new outlet and the above mentioned streets are now embraced under Section 1.

The new outlet is far better than the old, with the following advantages:

First—It empties outside of Cedar island, into the harbor at once, where it undoubtedly belongs.

Secondly—The long line of outlet is located on the upland and along the shore, where rights of way will be secured, and from present outlook, the property holders giving this right of way will eventually open streets over the same. This fact will make the outlet line available for a large percentage of its length for house connections, as well as being taxable on adjoining property, where used for that purpose.

Thirdly—It allows all property that cannot be reached by the old sewers to enter into the new system.

Attention is hereby called to the map of Larchmont, showing old sewers, contours, etc., filed May 21, 1898, as well as to larger map of Larchmont herein inclosed.

Population—The population remains as per report of May 21, 1898.

There are no houses at present upon the outlet line. The only present built-up portion, is on block bounded by Collins, Addison, Chatsworth, and Boston road. On Collins avenue for the above distance all lots are occupied for business purposes, and is the district sought to be relieved as soon as possible. The rest of the section has only a few scattered houses, but is growing, although it will probably be several years before sewers are needed in other streets. It will be seen that a number of streets are laid out on maps and ground, but not graded or opened to the public. Most prominent are Sheldon avenue, Locust avenue, and Roosevelt avenue. It is the intention to build this sewer first class in every way, upon the separate system and for sewage matter only. The pipes are of ample size, grades good, five per cent being the minimum on 8-inch pipe, and 25 per cent. on the outlet 20-inch pipe. The end of the outlet will be several feet under mean low water.

The plan includes a copy of the surroundings, as taken from the U. S. Government chart, which clearly shows the neighboring shore.

Although on a small scale the information is so comprehensive I trust your Board will excuse the small scale upon which it is shown.

For further information upon the general facts, I respectfully refer to report May 21, 1898.

L. E. VAN ETTEN, C. E.

Dated February, 1898.

LANSINGBURG, N. Y.

Extension of a sewer

The first sewers in the village of Lansingburg were constructed before the enactment of the law of 1889, requiring sewer plans to be submitted to the State Board of Health for inspection and approval.

On April 9, 1890, the State Board of Health approved plans for sewers on Seventh, Eighth, Tenth, Twelfth, Twenty-first, and Twenty-fourth streets. These plans, together with a map of the sewers previously built, appear in the 11th annual report of the Board.

On June 30, 1899, the State Board of Health approved a plan for an extention of the Twenty-fourth street sewer, which plan is shown on "Plate U" of this report.

NEW ROCHELLE, N. Y.

Extension of storm-water drain

Original plans for the sewer system of New Rochelle were approved by the State Board of Health on December 19, 1888, and appear in the 9th annual report of the Board, and plans for a change of location of the outlet sewer were approved by the Board on January 29, 1898, and appear in the 19th annual report of the Board.

Plans for an extension of the storm-water drain on Main street were approved by the State Board of Health on February 23, 1899, and form "Plate V" and "Plate W" of this report.

ONEIDA, N. Y.

Change in sewer location

The original plans for the sewer system of Oneida were approved by the State Board of Health April 7, 1892, and appear in the 13th annual report of the Board. Subsequent changes and additions were approved on June 30, 1896, May 26, 1897, and November 16, 1898, and appear in the 17th, 18th and 19th annual reports, respectively.

On September 22, 1899, the State Board of Health approved a change of location of the Messenger street sewer to avoid a new feeder-wall on Erie canal feeder. The change of location is shown on "Plate X" of this report.

PORT JERVIS, N. Y.

Extension of sewer outlet

Original plans for the sewer system of the village of Port Jervis were approved by the State Board of Health in 1891 and the system was built during that year.

On November 16, 1899, the State Board of Health approved a plan for an extension of the sewer outlet to a point 500 feet farther down the Delaware river. This plan is shown on "Plate Y" and "Plate Z" of this report.

SOUTH NYACK, N. Y.

Original sewer plans and change in outlet

Original plans for the sewer system of the village of South Nyack were approved by the State Board of Health on February 23, 1899. The plans comprise:

First—A contoured sewer map of the village forming "Plate AA" of this report.

Second—Twelve sheets of street sewer profiles forming "Plates BB" to "MM" inclusive.

Third—A plan of the outlet sewer showing piling and masonry protection forming "Plate NN" of this report.

Fourth—A set of specifications governing construction of the system on file in the office of the State Board of Health.

Subsequently an application to change the North outfall sewer was made as follows:

NYACK, N. Y., *June* 12, 1899

New York State Board of Health, BAXTER T. SMELZER, *Secretary, Albany, N. Y.:*

Sirs—At the request of the board of trustees of the village of South Nyack, N. Y., I submit for your approval herewith a revised plan for the North outfall for the sewer system designed by C. T. Barrett, C. E., for said village, and approved by your Board February 23, 1899.

We wish to substitute this crib construction for the masonry and pile construction of the aforesaid plans for the following reason: The proposed site of the outfall is exposed to the action of severe easterly and northeasterly storms during the winter and we believe the stone-filled crib would be a more permanent structure in this position.

Also by this construction we get a grade of one foot in 100 from high water mark to the end of the outfall, with all joints run and calked above water, at the same time the bend

at the end will prevent any obstructions from getting into the end of the outfall. The village board is very anxious to get to construction on this outfall and anything which might be done to hurry matters along would be greatly appreciated by them.

I am, respectfully yours,

GAVIN N. HOUSTON,

Engineer of board of trustees

This application was accompanied by a plan of the North outfall as it was proposed to change it, which plan forms "Plate OO" of this report, also by a set of specifications and blank forms on file in the office of the State Board of Health. The change of outfall was approved by the State Board on June 30, 1899.

WAVERLY, N. Y.

Additional sewer

Plans for certain sewers in the village of Waverly were approved by the State Board of Health on October 29, 1895, and appear in the 16th annual report. Certain additions and changes in the 17th annual report.

On September 22, 1899, the State Board of Health approved a plan for a new sewer on Chauncey street, which plan is shown on "Plate PP" of this report.

Investigation by Order of the Governor

SARATOGA LAKE NUISANCE

To Honorable THEODORE ROOSEVELT, *Governor of the State of New York:*

Your petitioner, T. F. Hamilton, of Saratoga Springs, N. Y., respectfully shows that he resides in said village and is an attorney and counsellor-at-law.

That on or about the 4th day of October, 1898, a petition was presented to the Governor of the state of New York, signed by many residents and property owners on Saratoga lake, complaining of the condition of said lake and its defilement and pollution from causes therein suggested.

That the Governor referred said petition to the State Board of Health and that the said Board of Health has referred the matter to Professor Olin H. Landreth of Schenectady, N. Y., the consulting engineer of said State Board of Health, and that said consulting engineer has made a partial report to the State Board of Health, a copy of which report is hereto annexed, from which it appears that a public nuisance exists and that the rights of the public are seriously impaired; and your petitioner, representing said property owners, respectfully requests that the State Board of Health be required to make an examination into the causes of said defilement and report the results thereof to the Governor within a time to be specified therefor to the end that the Governor of the state of New York may declare the matters mentioned in said report to be nuisances and may order the same changed, abated or removed, as he may direct.

T. F. HAMILTON

SARATOGA SPRINGS, N. Y., *January* 6, 1899.

STATE OF NEW YORK, }
COUNTY OF SARATOGA. } *ss.:*

T. F Hamilton, being duly sworn, says that he resides in the village of Saratoga Springs, N. Y., and has read the foregoing petition, and that the same is true to the best of deponent's knowledge, information and belief.

Subscribed and sworn to before me this 6th day of January, 1899.

T. F. HAMILTON

WILLIAM F. MEIGHER,
Commissioner of deeds

SCHENECTADY, N. Y., *December* 14, 1898

BAXTER T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—In the matter of the complaints as to the unsanitary conditions of Saratoga lake, which you referred to me with instructions to investigate the same, by communication of November 28, I beg to submit the following report on the same:

On the 8th instant I met T. F. Hamilton by appointment, and with him went to Saratoga lake, visiting the westerly and northerly shores of the same, as well as the valley of the Kayaderosseras creek up to the point where the Saratoga Springs outlet sewer enters it; also the territory between the village of Saratoga Springs and the lake and creek, as well as the point on the outlet sewer where the storm-water overflow is allowed to escape into Village creek, which empties into Lonely lake, a tributary of Saratoga lake, through Kayaderosseras creek, I also met and made inquiries of numerous citizens in the localities covered by the cursory examination, as well as the village engineer, Mr. Mott. I did not visit any portion of the Kayaderosseras creek above the sewer outfall, but collected information from numerous persons conversant with the upper portions of the creek.

My instructions to investigate the complaints referred to me, which complaints attempt to specify the causes of the unsanitary

conditions, naturally call for two quite distinct determinations: (1) An examination as to reality or actual existence of any ground for complaint. (2) An investigation as to the cause of the unsanitary conditions, in order to intelligently reach the question of remedy.

Concerning the first of these two determinations, I am fully prepared to report that, although at the present season of the year the conditions complained of are least evident, still from all evidence collected I am convinced that there is ample ground for complaint and that a grievance actually exists similar in character to that complained of in the papers sent me. Ordinarily my report would also cover the second portion of the investigation, but in this case, it appears to me very evident from the facts ascertained by me that a very considerable portion of the evidence which will have to be secured in order fully to locate the cause or causes of the conditions complained of will have to be looked for from persons who may not be willing voluntarily to give all the information needed. To begin such an investigation and find it limited in extent by the willingness or unwillingness of important witnesses would either result in an incomplete and useless undertaking, or would delay the proper investigation. I am therefore of the opinion that no proper investigation of the causes of the conditions complained of, nor in fact, of the true extent of the conditions without waiting for a recurrence of the summer months, can be made without a judicial investigation or inquiry made with due authority to call for persons and papers. From the evidence secured, I am of the opinion that a public nuisance exists, and that the rights of the public are seriously impaired. These rights in this particular complaint are represented by numerous individuals whose interests are extensive; and these interests are not only being injured by the public nuisance in proportion to the severity of the conditions and the duration of their existence, but are actually in danger of destruction or serious permanent impairment, from the nature of the interests which principally depend on the maintenance of sanitary and agreeable conditions in the streams and

lake concerned, and to which the complainants and others stand in the relation of riparian owners. The public, as represented by these complainants and others, is clearly entitled to a reasonable degree of promptness in the abatement of the conditions found to exist. Under these circumstances I do not think it desirable nor necessary to wait for a return of warm weather before making the investigation into the causes of the detrimental conditions.

I therefore respectfully request that you instruct me whether to continue the investigation to cover the *causes* of the conditions complained of, as I may be able to perform it, or to wait for a judicial investigation by the State Board of Health, or a committee thereof, having power to subpoena witnesses and thereby make the investigation an exhaustive one, as the conditions and circumstances attending the result will probably require that it should be. Such an investigation, while being judicial, will necessarily be largely technical, and hence if entered upon it should be carefully worked up in advance.

I beg to recommend strongly the latter option.

I am, dear sir,

Very truly yours,

OLIN H. LANDRETH,

Consulting engineer

To His Excellency Hon. FRANK S. BLACK, *Governor of the State of New York, Albany, N. Y.:*

The petition of the undersigned residents of the county of Saratoga respectfully shows as follows:

That Saratoga lake in said county is about five miles long and about two miles wide, and is about four miles from the villages of Ballston Spa and Saratoga Springs, and that Saratoga Springs is a summer resort, visited by thousands of tourists every summer, and to Saratoga lake is the chief drive and resort; that said lake has been for a great many years a prominent and attractive resort for fishing, hunting and boating, and for the past few years offensive odors have arisen from the waters in the said lake near the shores, causing annoyance and breeding disease;

that large numbers of fish have been picked up dead along the shores of the lake, and the shores thereof in certain portions are covered with filthy and noxious material, offensive to the eye and giving out offensive odors; that in the opinion of your petitioners, unless measures are taken to prevent the defilement of said lake, and its condition continues to grow worse, all the fish in the lake will be killed and people will cease to occupy cottages on the shores, and it will cease to be attractive as a summer resort.

That the causes of defilement of the waters of the lake are various; that they proceed from the discharge of the sewage of the villages of Saratoga Springs and Ballston Spa into said lake, and from the discharge into said lake of chemicals and refuse from certain manufacturing establishments located in or near the village of Ballston Spa.

That it would be impracticable to apply to the local boards of health for relief, as Saratoga lake is situated in several towns.

Your petitioners therefore pray that you will exercise the powers conferred upon you by the revised statutes and order the State Board of Health to make the necessary examination, with the view of having the nuisance complained of abated or removed, and your petitioners will ever pray.

Dated *October* 1, 1898

Thomas C. Luther,
Mary C. Luther,
Nathaniel B. Arnold,
Benj. F. Freeman,
P. A. Post,
Benj. F. Fisher,
Joseph Smith,
George White,
Charles Kirkpatrick,
Joseph Gilmore,
Archie Paul,
A. I. Whitehouse,
Geo. C. Lawson,
Mrs. Sarah Hall,
Abram Deuel,
Vernon E. Arnold,
Melvin Elkenburgh,
Austin A. Yates,
Willard H. Near,
James Doughty, jr.,
Henry A. Near,
F. J. Riley,
Benj. C. Riley,
W. V. Riley,
Robert E. Morey,
Horace Phillips,
Jas. M. Holsapple,
Geo. Abel,
James H. Barrett,
H. J. Newman,
Geo. E. Rogers.

February 1, 1899

Hon. WILLIAM J. YOUNGS:

My Dear Sir—Enclosed I send you an order which I have prepared requiring the State Board of Health to investigate the alleged nuisances in Saratoga lake. I have drawn it according to the statute, section six of article one of the Public health law, being chapter 661 of the Laws of 1893. I have also drawn it according to the precedent which I find in a similar case, reported at page 99 of the 16th annual report of the State Board of Health for the year 1895.

I have asked that the report be made before March 1, which gives 30 days, and it is necessary that evidence be laid before the Governor before the Legislature adjourns, as I am quite sure it will develop a state of affairs which will call for legislative action of some kind.

I trust the time within which to make the report will not be shortened without consultation with me.

In case you may not have the papers at hand, I send you a copy of the report of Prof. Landreth so that you may see the serious character of the alleged nuisance.

Yours very truly,

T. F. HAMILTON

IN THE MATTER OF THE ALLEGED NUISANCES IN SARATOGA LAKE

To the State Board of Health:

I have been presented with a petition showing that on or about the 4th day of October, 1898, a petition was presented to Hon. Frank S. Black, governor of the state of New York, signed by many residents and property owners on Saratoga lake, complaining of the condition of said lake and its defilement and pollution from nuisances therein mentioned.

That said petition was refered to the State Board of Health and that said Board assigned the matter to Professor Olin H. Landreth, the consulting engineer of the Board; and that said consulting engineer has made a partial report to the State Board

of Health, a copy of which is annexed to said petition and it appears from said report that a public nuisance exists and that the rights of the public are seriously impaired and are actually in danger of destruction or serious impairment; and that an official investigation is desirable to ascertain the cause of the unsanitary conditions which exist.

I, therefore, require you, in accordance with the provisions of section six of article one, of the Public health law, to make an examination into the alleged nuisances and affecting the health of the locality named and report the result thereof to me, on or before the 10th day of March, 1899.

Dated at the Capitol in the city of Albany, this 16th day of February, 1899.

THEODORE ROOSEVELT,
Governor

SCHENECTADY, N. Y., *December* 14, 1898

BAXTER T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—In the matter of the complaints as to the unsanitary condition of Saratoga lake, which you referred to me with instructions to investigate the same by communication of November 28, I beg to submit the following report on the same:

On the 8th instant I met T. F. Hamilton by appointment and with him went to Saratoga lake, visiting the westerly and northerly shores of the same as well as the valley of the Kayaderosseras creek up to the point where the Saratoga Springs outlet sewer enters it; also the territory between the village of Saratoga Springs and the lake and creek, as well as the point on the outlet sewer where the storm-water ovrflow is allowed to escape from the sewer into Village creek, which empties into Lonely lake, a tributary of Saratoga lake, through Kayaderosseras creek. I also met and made inquiries of numerous citizens in the localities covered by the cursory examination, as well as the village engineer, Mr. Mott. I did not visit any portion of the Kayaderosseras creek above the sewer outfall, but collected

information from numerous parties conversant with the upper portions of the creek.

My instructions to investigate the complaints referred to me, which complaints attempt to specify the causes of the unsanitary conditions, naturally call for two quite distinct determinations: (1) An examination as to the reality or actual existence of any ground for complaint, and (2) an investigation as to the cause of the unsanitary conditions, in order to intelligently reach the question of remedy.

Concerning the first of these two determinations, I am fully prepared to report that although at the present season of the year the conditions complained of are least evident, still from all evidence collected I am convinced that there is ample ground for complaint and that a grievance actually exists similar in character to that complained of in the paper sent me. Ordinarily my report would also cover the second portion of the investigation, but in this case it appears to me very evident from the facts ascertained by me that a very considerable portion of the evidence which will have to be secured in order to fully locate the cause or causes of the conditions complained of will have to be looked for from persons who may not be willing voluntarily to give all the information needed. To begin such an investigation and find it limited in extent by the willingness or unwillingness of important witnesses would either result in an incomplete and useless undertaking or would delay the proper investigation. I am therefore of the opinion that no proper investigation of the causes of the conditions complained of, nor in fact, of the true extent of the conditions without waiting for a recurrence of the summer months, can be made without a judicial investigation or inquiry made with due authority to call for persons and papers. From the evidence secured I am of the opinion that a public nuisance exists and that the rights of the public are seriously impaired; these rights in this particular case are represented by numerous individuals whose interests are extensive; and these interests are not only being injured by the public nuisance in proportion to the severity of the conditions and the duration of their existence, but are actually in danger of destruc-

tion or serious permanent impairment from the nature of these interests which principally depend on the maintenance of sanitary and agreeable conditions in the streams and lake concerned and to which the complainants and others stand in the position of riparian owners. The public, as represented by these complainants and others, is clearly entitled to a reasonable degree of promptness in the abatement of the conditions found to exist. Under these circumstances I do not think it desirable nor necessary to wait for a return of warm weather before making the investigation into the causes of the detrimental conditions.

I therefore respectfully request that you instruct me whether to continue the investigation to cover the causes of the conditions complained of, as I may be able to perform it, or to wait for a judicial investigation by the State Board of Health, or a committee thereof, having power to subpoena witnesses and thereby make the investigation an exhaustive one, as the conditions and circumstances attending the results will probably require that it should be. Such an investigation, while being judicial, will necessarily be largely technical, and hence if entered upon it should be carefully worked up in advance.

I beg to recommend strongly the latter option.

I am, dear sir,

Very truly yours,

OLIN H. LANDRETH,

Consulting engineer

SCHENECTADY, N. Y., *March* 22, 1899.

BAXTER T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—In the matter of the Saratoga Springs sewage disposal investigation, I beg to report that agreeable to your instructions of February 2 I have made a thorough examination of the conditions and circumstances which bear on the matter and have reached conclusions as to the most feasible and proper method of sewage disposal for that village, and in accordance with informal arrangement with you have formulated and submitted to the president of trustees of the village a preliminary report contain-

ing my conclusions and making certain recommendations looking to the matter of disposal of the sewage and the entire and complete discontinuance of the nuisances and objectionable conditions against which complaints have been made. This report was submitted to the trustees at a meeting last night and action was taken looking to securing authority from the present Legislature to carry out the recommendations made. My full report giving full data and information and a complete discussion of the problem is being prepared and when completed will be submitted to you. Pending the submission of that report it may be proper to state that my recommendations in outline were as follows: (1) The complete separation of the sewage from storm-water and roof-water. (2) The construction of a new trunk sewer for sewage proper only, laid at a flatter grade than the present trunk sewer in order to deliver the sewage to the disposal site at a sufficiently high elevation to operate the disposal without pumping. (3) The carrying out of stringent means to reduce the present enormous rate of water consumption (being between 400 and 500 gallons per capita per day on the average and occasionally exceeding the larger figure) in order to reduce the amount of sewage to be treated. (4) The purchase at once of a small tract of land and the securing of options on a large tract of land for construction of disposal works. (5) The constructon at once of a small disposal plant using accelerated filtration and the prosecution of experimental work looking to the determination of the best details of filtration to be adopted for the complete and larger plant. (6) The gradual extension of the disposal works to provide for the disposal of the entire sewage as rapidly as the experimental work will indicate which is the best plan and details to follow. It is expected that this complete withdrawal of the sewage from the Kayaderosseros creek can be accomplished within two years, which is as short a time as the construction of new works and reasonable experimentation to determine what is the best plan will make possible. Stimulated somewhat possibly by the decisions in injunction and damage suits already rendered, by other actions now pending, and by the

judicial inquiry of the State Board of Health, the people and the authorities are thoroughly awakened to the urgency of immediate and radical measures for the improvement of conditions, and give evidence of an intention to inaugurate such improvements without delay.

I am, dear sir,

Very truly yours,

OLIN H. LANDRETH,
Consulting engineer

ALBANY, *March* 23, 1899

Hon. THEODORE ROOSEVELT, *Governor of the State of New York, Albany, N. Y.:*

Sir—I have the honor to transmit herewith the report of this Board, together with a copy of the testimony taken in connection with an investigation ordered by you in the matter of the alleged pollution of the waters of Saratoga lake.

Very respectfully,

BAXTER T. SMELZER,
Secretary

ALBANY, *March* 22, 1899

Hon. THEODORE ROOSEVELT, *Governor of the State of New York:*

Sir—The New York State Board of Health, pursuant to an order made by you based on a petition signed by many residents and property owners in the vicinity of Saratoga lake, and dated March 10, 1899, directing said Board to make an examination into certain nuisances alleged to exist in the vicinity of Saratoga lake, and caused by the discharge of sewage, domestic wastes and manufacturing refuse into said lake, have the honor to report that after due notice a hearing, lasting two days, was held in the village of Ballston Spa, commencing March 2, 1899. That said hearing was largely attended and the petitioners and complainants were ably represented by Hon. T. F. Hamilton, their attorney; the village of Ballston Spa and the several manufacturing establishments hereinafter mentioned, by Judge L'Amoreaux;

and the village of Saratoga Springs by J. F. Swanick. A large number of witnesses, including local health officers, chemists, engineers, laymen and sanitary experts were examined under oath, and a personal inspection of many of the manufacturing establishments alleged to be causing the nuisance was made by the State Board, and from the investigation so conducted the following findings of fact are submitted, together with the testimony taken:

I

That Saratoga lake is about six miles in length, extending in a northeasterly and southwesterly direction, and is surrounded by the townships of Malta, Saratoga Springs, Saratoga and Stillwater. It is about four miles east of Ballston Spa and about the same distance east, and a little south, from the village of Saratoga Springs. Its principal inlet is the Kayaderosseras creek and its outlet is Fish creek, which flows northeasterly into the Hudson river. Its inlet, Kayaderosseras creek, is a tortuous stream flowing in an easterly direction through the village of Ballston Spa and the intervening farming section to the lake. Several smaller streams or brooklets converge and flow into it near the village of Ballston Spa, and the public and private sewers and drainage of said village also empty into it.

II

That along the banks of said creek and its tributaries are located several large manufacturing plants engaged in the manufacture of paper, sulphite pulp, and in tanning leather, and the effluent and manufacturing refuse from these manufacturing plants are discharged into the Kayaderosseras creek, so that said creek is practically an open sewer, from Ballston Spa to the lake.

III

The tannery, which discharges its effluent through a small brook or arm, known as Gordon creek, is located within the village of Ballston Spa, and is owned by Messrs. Hall, Haight & co., a copartnership employing about 350 men. It is en-

gaged in tanning and finishing all kinds of leather, and its yearly output in value is $1,750,000. The establishment was started in the year 1881, and the process of tanning is briefly described as follows: The hides are put into vats of fresh water and allowed to soak four days for the purpose of removing the salt, then they are put into lime pits, where they are handled over every day for six days. From there they go into what is called a depilatory condition, for the purpose of neutralizing the lime after the hair is removed. Next they are put into the bark liquor, made from water passed over ground hemlock bark, and from there they go into the finishing shop. The water used in soaking the hides containing a large quantity of salt, the lime-water, and the liquid from the depilatory process, which is lime-water neutralized by lactic acid, and the tanning liquors, are all discharged finally through a box sewer into the creek, and the effluent so discharged is highly colored and can hardly be claimed to be free from pollution.

IV

There are also several mills engaged in the manufacture of paper and sulphite pulp, located on or over the banks of said stream, and owned by the George West paper and bag company, a domestic corporation incorporated pursuant to the laws of the state and having a capital stock of $500,000. The mill known as the "Glen mill" is engaged in the manufacture of sulphite pulp. The amount manufactured is more than a hundred tons per week. The process is briefly described as follows: From a 150 to 200 cords of wood are ground up each week and the chip or shred is put into large digesters, lined with lead, where it is treated with hot sulphurous acid and other chemicals, which subdue the resin and vegetable nature of the wood and leave the fibre free, which is removed and further treated with chloride of lime and other chemicals. About 300 pounds of sulphur is used for the manufacture of a ton of the pulp. Large quantities of chloride of lime and other chemicals are also used and the effluent from the mill is ultimately discharged into the Kayaderosseras creek.

V

That nearly all the water of said creek is carried through one or all of these mills, and after acting as a solvent or agent in chemical processes, finds its way back into the stream, carrying in solution acids, alkalies, organic and inorganic matter, in such large quantities that a decidedly acid reaction can be detected in the waters of said creek from three to four miles down the stream. These acids and alkalies coming in contact with the large quantities of sewage discharged into this stream hasten chemical action and fermentation, thereby generating gases and giving off odors which are offensive to smell, often producing nausea and affecting the comfort, if not the health, of those obliged to inhale them.

VI

That into the said Kayaderosseras creek is also discharged through a trunk sewer, open and closed, the sewage of Saratoga Springs, a village varying in population from 10,000 in winter to over 100,000 in summer.

VII

That the shores of Saratoga lake are lined with farm houses, cottages and hotels, where thousands of people go in the summer time for pleasure, and the sewage and domestic wastes of these hotels and cottages are discharged into the lake, and those who complain most bitterly about its pollution seem to forget the ancient rule established in Jerusalem, that each person should sweep before his own door.

VIII

That Saratoga lake is polluted in the manner above described, and the sewage, wastes, refuse matter, fish that die from natural causes, as well as those killed by the contamination of the water, are washed upon the shores, dockings and pilings, and during the warm summer months ferment and decay, producing stenches more or less offensive, according to the customs and habits of those obliged to inhale them.

IX

That the waters of Kayaderosseras creek and Saratoga lake are not directly used for potable purposes, but ultimately find their way through Fish creek into the Hudson river, which is the source of many potable water supplies, and in this way one of the most perplexing and serious problems affecting the life and health of the people of our state is presented. Many of the creeks and streams of the state, the waters of which were fresh and pure twenty-five or fifty years ago, and were used for power purposes only, have come to be little more than open sewers, transmitting disease germs from one place to another, filling up ponds and reservoirs with refuse matter, destroying or driving away fish, emanating offensive and disagreeable odors, affecting the riparian interests of those owning property along their banks, and depriving them of the use of pure and wholesome water.

X

That the hotel proprietors and cottage owners along the shores of the lake, the mill owners along the banks of the inlet to said lake, and the villages of Saratoga Springs and Ballston Spa are creating and maintaining a nuisance injurious to the fullest and freest enjoyment of the property rights of those living along the shores and banks of said lake and stream, as well as a nuisance, indirectly, affecting the public health in the manner aforesaid.

CONCLUSION

The State Board would therefore make the following recommendations, based on the foregoing findings of fact:

I

That the hotel and cottage proprietors owning property along the shores of said lake and discharging raw sewage and domestic wastes into the waters thereof, be required to collect and dispose of the same in a sanitary manner, to be approved by this Board, and that after July 1, 1899, the discharge of any raw sewage into the waters of said lake by said proprietors shall be declared a nuisance and ordered abated by the Governor.

II

That the villages of Saratoga Springs and Ballston Spa, either individually or collectively, be required to put in disposal works, subject to the approval of the State Board of Health, on or before April 1, 1900, and that the discharge of raw sewage into the waters of Kayaderosseras creek or Saratoga lake, after said date, shall be declared a nuisance injurious to public life and health, and that the same be abated by order of the Governor.

III

That the discharge of the effluent and waste from the tannery, owned and operated by Messrs. Hall, Haight & co., through Gordon creek into Kayaderosseras creek, be declared a nuisance and ordered abated on or before April 1, 1900, unless the effluent shall be treated in a sanitary manner to be approved by the State Board so as to render the same innocuous.

IV

That the discharge of the effluent and waste from the paper and sulphite mills, owned and operated by the George West paper and bag company, into Kayaderosseras creek, be declared a nuisance and ordered abated on or before April 1, 1900, unless the effluent shall be treated in a sanitary manner to be approved by the State Board so as to render the same innocuous.

I hereby certify that the foregoing was adopted as the report of the Board at a meeting of the State Board of Health held March 22, 1899, at the Capitol, Albany, N. Y.

BAXTER T. SMELZER,

[L. S.] *Secretary and executive officer*

STATE OF NEW YORK, EXECUTIVE CHAMBER,

ALBANY, *March* 23, 1899

BAXTER T. SMELZER, M. D., *Secretary State Board of Health, Albany, N. Y.:*

Sir—I have yours of the 23d instant transmitting the report of your Board on the alleged pollution of the waters of Saratoga lake, for which accept my thanks. I have directed the recommendations of your report to be carried out.

Very truly yours,

THEODORE ROOSEVELT

STATE OF NEW YORK, EXECUTIVE CHAMBER

Whereas, a petition signed by many residents and property owners in the vicinity of Saratoga lake was heretofore presented to me, alleging the existence of public nuisances in the vicinity of said lake, caused by the discharge of sewage, domestic waste and manufacturing refuse into said lake, whereby the health and comfort of the people of the community was jeopardized and endangered; and,

Whereas, on the 10th day of March, 1899, I did, as Governor of the state of New York, pursuant to the provisions of chapter 661 of the laws of 1893, require, order and direct the State Board of Health to examine into the nuisances alleged to exist by the aforesaid petition and to examine into the questions affecting the security of life and health in the locality mentioned in the aforesaid petition, and report to me the results of such examination; and,

Whereas, the State Board of Health have made the required examination and reported the result thereof to me within the limit of time prescribed for such examination and report, from which it appears:

I

That Saratoga lake is about six miles in length, extending in a northeasterly and southwesterly direction, and is surrounded by the townships of Malta, Saratoga Springs, Saratoga and Stillwater. It is about four miles east of Ballston Spa and about the same distance east, and a little south, from the village of Saratoga Springs. Its principal inlet is the Kayaderosseras creek and its outlet is Fish creek, which flows northeasterly into the Hudson river. Its inlet, Kayaderosseras creek, is a tortuous stream flowing in an easterly direction through the village of Ballston Spa and the intervening farming section to the lake. Several smaller streams or brooklets converge and flow into it near the village of Ballston Spa, and the public and private sewers and drainage of said village also empty into it.

complain most bitterly about its pollution seem to forget the ancient rule established in Jerusalem, that each person should sweep before his own door.

VIII

That Saratoga lake is polluted in the manner above described, and the sewage, wastes, refuse matter, fish that die from natural causes, as well as those killed by the contamination of the water, are washed upon the shores, dockings and pilings, and during the warm summer months, ferment and decay, producing stenches more or less offensive, according to the customs and habits of those obliged to inhale them.

IX

That the waters of Kayaderosseras creek and Saratoga lake are not directly used for potable purposes, but ultimately find their way through Fish creek into the Hudson river, which is the source of many potable water supplies, and in this way one of the most perplexing and serious problems affecting the life and health of the people of the state is presented. Many of the creeks and streams of the state, the waters of which were fresh and pure twenty-five or fifty years ago, and were used for power purposes only, have come to be little more than open sewers, transmitting disease germs from one place to another, filling up ponds and reservoirs with refuse matter, destroying or driving away fish, emanating offensive and disagreeable odors, affecting the riparian interests of those owning property along their banks, and depriving them of the use of pure and wholesome water.

X

That the hotel proprietors and cottage owners along the shores of the lake, the mill owners along the banks of the inlet to said lake, and the villages of Saratoga Springs and Ballston Spa are creating and maintaining a nuisance injurious to the fullest and freest enjoyment of the property rights of those living along the shores and banks of said lake and stream, as well as a nuisance, indirectly, affecting the public health in the manner aforesaid; and

Whereas, the said report of the State Board of Health has been in all respects approved by the Governor of the state of New York and filed in the office of the secretary of state;

Now, therefore, in pursuance of the provisions of chapter 661 of the laws of 1893, and of the power vested in me as Governor of the state of New York, I do hereby declare the following in relation to the things found and certified by the State Board of Health as aforesaid:

I

That on and after July 1, 1899, no proprietor, lessee or occupant of any hotel, cottage, or dwelling house on or along the shore of Saratoga lake, or on or along any stream tributary thereto, shall discharge any raw sewage into the waters of said lake or into the streams tributary thereto; and on and after the date aforesaid, such proprietor, lessee or occupant shall collect all sewage and domestic waste and refuse and dispose of the same in a sanitary manner, to be approved by the State Board of Health.

II

That on or before April 1, 1900, the villages of Saratoga Springs and Ballston Spa shall, either individually or by co-operating together, put in disposal works for the sanitary treatment of sewage from said villages, upon plans to be approved by the State Board of Health.

III

That the discharge of the effluent and waste material from the tannery owned and operated by the firm of Hall, Haight & co., into and through Gordon creek and into and through Kayaderosseras creek, is hereby declared to be a nuisance, which the said firm are hereby ordered to abate by discontinuing such discharge on or before April 1, 1900; provided, however, that nothing herein contained shall be construed to prevent such discharge into and through said creeks subsequent to the date aforesaid after the said waste and effluent materials shall have been treated in a sanitary manner, so as to render the same innocuous, and according to process to be approved by the State Board of Health.

IV

That the discharge of effluent and waste material from the paper and sulphite mills owned and operated by the George West paper and bag company into and through Kayaderosseras creek is hereby declared a nuisance, which the said firm are hereby ordered to abate on or before April 1, 1900; provided, however, that nothing herein contained shall be construed to prevent such discharge into said creek subsequent to the date aforesaid, after such effluent and waste material shall have been treated in a sanitary manner, so as to render the same innocuous, and according to process to be approved by the State Board of Health.

Given under my hand and the privy seal of the state, at the capitol in the city of Albany, this 30th day of
[SEAL] March, in the year of our Lord, one thousand eight hundred and ninety-nine.

THEODORE ROOSEVELT

SARATOGA SPRINGS, N. Y., *June* 14, 1899

Hon. THEODORE ROOSEVELT, *Executive Chamber, Albany, N. Y.*

Dear Sir—I find it impossible to dispose of the sewage from my hotel, in compliance with your order of this spring. In explanation of the same, would say:

Last month I engaged Prof. Olin H. Landreth, consulting engineer of the State Board of Health, to advise me of the proper method of disposing of my sewage, and to superintend the construction of same.

He has visited the place, taken measurements, levels, etc., and is now working on plans for the same.

As it will be quite an extensive piece of work, I therefore respectfully request you to extend my time to December 1, 1899.

Awaiting your commands, I am,

Yours sincerely,

THOMAS C. LUTHER

ALBANY, N. Y., *June* 16, 1899

THOMAS C. LUTHER, *White Sulphur Spring Hotel, Saratoga Springs, N. Y.:*

Dear Sir—Your communication of the 14th instant addressed to the Governor, stating that it will be impossible to dispose of the sewage from your hotel in compliance with the order of the Governor and giving reasons for same, has been referred to this Board.

In reply you are informed that your statement will be submitted to the Board at a meeting to be held within the next two weeks.

Very respectfully,

BAXTER T. SMELZER,
Secretary

ALBANY, *July* 19, 1899

Hon. THEODORE ROOSEVELT, *Governor of the State of New York, Albany, N. Y.:*

Dear Sir—I have the honor to inform you that commencing on the 6th day of April, 1899, the following notice was served by publication in connection with the recommendations made by this Board, and your order requiring the abatement of certain nuisances found to be causes for the pollution of the waters of Saratoga lake and of streams tributary thereto:

HEALTH NOTICE RELATING TO SARATOGA LAKE

To all whom this may concern: Take notice that on March 30, 1899, the Governor made an order in conformity with chapter 661 of the laws of 1893, a copy of which was duly filed with the State Board of Health. Among its requirements were the following:

"That on and after July 1, 1899, no proprietor, lessee, or occupant of any hotel, cottage, or dwelling house on or along the shore of Saratoga lake, or on or along any stream tributary thereto, shall discharge any raw sewage into the waters of said

lake or into the streams tributary thereto; and on and after the date aforesaid, such proprietor, lessee or occupant shall collect all sewage and domestic waste and refuse and deposit of the same in a sanitary manner, to be approved by the State Board of Health.

"Pursuant to said order, service of the above requirements is hereby made by publication for the reason that personal service will be impracticable.

"The order hereby referred to is on file in the office of the State Board of Health, where the same may be seen by any person interested.

"BAXTER T. SMELZER,

"*Secretary and executive officer, State Board of Health.*"

It has been found upon conferring with one of the consulting engineers of this Board, and upon receipt of a protest made by the proprietor of the White Sulphur Spring hotel at Saratoga lake, that it has been impossible to comply with the requirements of your order in the time specified July 1, 1899, and at a meeting of this Board, held June 30, 1899, the following resolution was adopted:

"Resolved, That the recommendations heretofore made to the Governor be modified so as to extend the time from July 1, 1899, to September 1, 1899, and that the Governor be requested to approve of the recommendations as so modified."

Very respectfully,

BAXTER T. SMELZER,

Secretary

NEWTOWN CREEK NUISANCES

STATE OF NEW YORK, EXECUTIVE CHAMBER,

ALBANY, *February* 10, 1899

To the State Board of Health, Albany, N. Y.:

Sirs—Referring to the attached communication from Robert Creighton, secretary, I would like a full report upon this matter.

Very truly yours,

THEODORE ROOSEVELT

CITIZENS' ORGANIZATION FOR THE ABOLISHING OF NEWTOWN CREEK NUISANCES

BROOKLYN, N. Y., *February* 9, 1899

Hon. THEODORE ROOSEVELT, *Governor State of New York:*

Dear Sir—For your favor of the 7th instant, replying to letter of mine dated February 4, I am greatly obliged.

Being unable to comply with the suggestion contained in your letter, that I call and see you in Albany, I have taken the liberty of adopting the alternative suggestion, and herewith present to you in writing the matters I desired to speak of.

For many years, as you are no doubt aware, Newtown creek has been the source of much discontent and agitation among the neighboring residents by reason of the disgusting condition of affairs there existing.

Manufactories, using the vilest and filthiest products, have accumulated along the banks of the creek until the waters that were once pure and unpolluted are now contaminated to such an extent that even the small fish that frequent the nearby waters of our city are unable to exist therein.

These manufactories not only contaminated the waters, but what is more reprehensible to their owners, the very air that we are compelled to breathe is oftentimes so polluted that the only escape therefrom is to remain indoors with closed windows, awaiting a change of wind which will drive the odors in some other direction.

This association was organized to abolish these foul conditions. That it has succeeded to some extent I am glad to state, but we are by no means rid of the nuisances.

We have succeeded in driving some of the manufactories away. There are some that still remain, in spite of proclamations issued by former governors of our state, and in spite of court proceedings and orders. Their owners are powerful and seem to have wonderful influence with our municipal authorities.

Now, we desire your aid in abolishing *all* these nuisances.

There is no reason why we should not have the same rights and privileges as the residents in any portion of our city or country, and one of the inalienable rights of man is to breathe the pure air, but that oftentimes is denied us. You, undoubtedly, are familiar with the stenches that are emitted from these manufactories; anyone having occasion to pass the creek on the cars or otherwise must always retain a vivid impression of the foulness and filthiness of Newtown creek. To remedy these unnecessary evils we have long fought and shall continue to fight until we are successful.

We ask that your Excellency will give this matter careful consideration. We have prepared and will forward a petition signed by thousands of our neighbors praying for the appointment of Dr. Hepp. Trusting that this may meet with your favorable consideration, believe me,

Very respectfully yours,

ROBERT CREIGHTON,

Secretary

186 Devoe street, Brooklyn.

ALBANY, *February* 27, 1899

Hon. MICHAEL C. MURPHY, *President Department of Health, New York:*

Dear Sir—In compliance with a resolution offered by Dr. A. H. Doty and adopting at a meeting of this Board held February 23, 1899, I have the honor to request that you furnish Hon. Theodore Roosevelt, governor of this state, with a copy of the result of the inspection at Newtown creek now being carried on, as Dr. Doty states, by a representative from your department.

I would also be pleased to receive a copy of the report for the information of this Board.

Very respectfully,

BAXTER T. SMELZER,

Secretary

DEPARTMENT OF HEALTH,
CITY OF NEW YORK, *March* 8, 1899

BAXTER T. SMELZER, M. D., *Secretary State Board of Health, Albany, N. Y.:*

Sir—At a meeting of the board of health of the department of health of the city of New York held this day, the secretary was directed to forward to the State Board of Health a copy of the result of the inspection of Newtown creek now being carried on by the department of health, and to state that a copy of the same has been to-day forwarded to Hon. Theodore Roosevelt, governor of the state of New York, in accordance with the terms of a resolution offered by Dr. A. H. Doty and adopted by the State Board of Health at its meeting held February 23, 1899.

Very respectfully,
C. GOLDEMAN,
Secretary pro tem.

The following is an excerpt from the report of Charles F. Roberts, M. D., sanitary superintendent of the department of health, for the year ending December 31, 1898.

NEWTOWN CREEK

Prior to the establishment of the board of health of the city of New York, as it is at present constituted, Newtown creek and the various offensive trade factories adjacent thereto, causing to a great extent the nuisance which exists, known as the Newtown creek nuisances, was under the control of two governing bodies, the department of health of the city of Brooklyn having control of those factories, etc., on the southwesterly or Brooklyn side, and the State Board of Health having control of the factories and waters adjacent thereto on the northwesterly side, which was in the county of Queens.

The 16th annual report of the State Board of Health contains a report of one of the inspectors at that time attached to the department of health of the city of Brooklyn, who, in a report to the New York State Board of Health under date of Decem-

ber 30, 1895, states that the offensive trade factories adjacent to Newtown creek numbered 28, as follows:

Preston Fertilizer Company,
Kings County Oil Works,
Queens County Oil Works,
American Reduction Company's Garbage Disposal Plant,
J. Rosenberg,
Nichols Chemical Works,
Reed Fertilizer Company,
W. Hoefner,
Peter Cooper Glue Factory,
Atlantic Carbon Works,
Moller & Company,
Van Iderstein Brothers,
Acme Fertilizer Company,
Wissel's Dead Animal Wharf,
Night Soil Boat,
De Muth Glass Works,
Columbia Distilling Company,
Suttle Brothers,
Eastern Distilling Company,
Haberman Manufacturing Company,
United States and Canada Degreasing Syndicate,
Robinson Brothers,
E. V. Crandall Company,
Funk Brothers,
Kalbfleisch Chemical Works,
Equity Gas Works,
William Knappman,
Greenpoint Chemical Works.

He reports also that the manure barges and discharge of sewage from the sewers of the city of Brooklyn add to the nuisances existing.

I am unable to find any later reports in regard to Newtown creek, either in the report of the State Board of Health or the report of the department of health of the city of Brooklyn.

At the time of the organization of the present board of health of the city of New York, on January 1, 1898, Newtown creek and the nuisances pertaining to the same came under the control of the board of health of the city of New York.

As sanitary superintendent of the department of health I personally inspected Newtown creek and the adjacent premises once or twice a month during the year 1898, and found the facts to be as follows:

Newtown creek is an arm of the East river which forms part of the boundary line between the boroughs of Brooklyn and Queens. It extends for about one mile and a half from the East river in a southwesterly direction. It is a tortuous stream and for a portion of its extent is bulkheaded on either side. The flow of water through the same is at all times sluggish. For years the effluent and débris from the many factories situated adjacent to it and the sewage from the streets of the boroughs of Brooklyn and Queens flow into the stream and this, with the natural deposit which takes place, and which is not carried out by the tidal flow, is deposited in the bed of the creek and on the meadows adjacent thereto.

This condition renders Newtown creek a nuisance of itself. The most prolific source of the increase of this nuisance is the discharge into the same of the sewage from the Provost, Jewell and Huron street sewers, and the Grand street and Metropolitan avenue sewers.

PUBLIC SEWERS

On May 6, 1898, I forwarded to the Board of Health a report as follows:

"I have the honor to report that on April 4, 1898, I inspected in the borough of Brooklyn, formerly Greenpoint, a section of land irregular in shape situated between Greenpoint avenue, Newell street, Norman and Kingsland avenues. This is low tide-water land the surface of which is covered by offensive mud. A portion of the same has been filled in with ashes, refuse, etc., and said filling in has been improperly done, leaving pools of stagnant water, all of which is, in spring high tides, flooded with

water from Newtown creek, an inlet of East river, the water of which is never fully changed and is of itself offensive in character.

"The land under these conditions emits foul and offensive odors, which endanger the lives of the occupants of adjoining premises. This nuisance is further augmented by the fact that three of the street sewers of the borough of Brooklyn discharge their contents over this low land.

"The Humboldt street sewer, 36 inches in diameter, discharges on the northerly side of Norman avenue into a channel left between the refuse dumped. Thirty yards to the north the sewer from Norman avenue discharges into the same channel at an angle of 60°. About 1000 feet to the northwest the 30-inch egg-shaped Meserole avenue sewer discharges its contents over the surface of the land.

"This discharge of refuse, animal and vegetable matter, mixed with night soil and sewage, is distributed over this land, the liquid portion of the same emptying partially into Newtown creek.

"During the summer season the odor that is emitted from the same is almost indescribable and can be observed for a long distance from the land.

"The action of sulphuretted hydrogen, which is generated from these deposits, causes the houses painted with white lead to become black, due to the formation of sulphide of lead.

"The total discharge from these sewers drains an area of a square mile of the borough of Brooklyn.

"The conditions herein described are prejudicial to the lives and health of the occupants of adjacent premises.

"The proper manner to abate that portion of the nuisance caused by the discharges of sewers on this land is the construction of street sewers from the sewer openings to the tide-water.

"It was contemplated by the authorities in Brooklyn to abate this nuisance, in compliance with chapter 998 of the laws of 1896, state of New York, entitled 'To provide for the abatement and prevention of nuisances in and about Newtown creek.' This act

was passed by the Legislature in order that proper sewers might be constructed to drain this and adjacent portions of the borough of Brooklyn to the East river, and in accordance with the same, plans and specifications were prepared to construct a large trunk sewer in Huron street, emptying into the East river, with smaller sewers connecting with the same on Provost and Jewell streets.

"Subsequently the authorities in Brooklyn set in motion proceedings, in compliance with the foregoing law, for the opening of Provost street. Commissioners were duly appointed by the supreme court for such purpose, and thereafter the board of aldermen rescinded the permission heretofore granted. Proceedings were then held in abeyance, and no further action taken.

"A communication on or about April 11, 1898, was forwarded to the Hon. Almet F. Jenks, assistant corporation counsel in charge of the borough of Brooklyn, as follows:

"'Dear Sir—A serious nuisance exists in your borough by reason of certain sewers discharging over the lowlands in the neighborhood of Newtown creek. The board here proposes to take immediate action looking to the abatement of the nuisance. It is reported that this can be done only by the construction of additional sewers discharging into the East river, as by a recent act they cannot discharge into Newtown creek.

"'I am informed that during the administration of your predecessor proceedings were taken in the supreme court to have a certain street declared open and that commissioners were appointed, but just how far the proceedings were conducted I have been unable to ascertain.

"'It seems the difficulty is with Provost street, between Paidge avenue and Greenpoint avenue, and just as soon as this part of the street is opened the work can be consummated.

"'Will you be good enough to let me know how the proceedings stand and the facts in relation thereto, or what remains to be done on the part of the city before the right exists to construct these sewers, as the board wish to see that the sewers are constructed without further delay.

"'HENRY STEINERT,

"*'Assistant corporation counsel.'*

"On May 5, 1898, the following reply was received from Mr. Jenks:

"'Dear Sir—Your communication of the 11th ult. in relation to the opening of Provost street in this borough was duly received.

"'I have investigated the matter and find that proceedings were instituted to open Provost street and that the resolution in relation to this matter was rescinded by the common council of the city of Brooklyn on the 19th day of July, 1897. Under the decision in Palmer vs. City of Brooklyn, 146 N. Y. 379, I am of the opinion that the proceedings were discontinued. It seems to me that it will be necessary to begin proceedings to open Provost street under the new charter.

"'ALMET F. JENKS,

"'*Assistant corporation counsel.*'

"It is apparent from the foregoing opinion of the assistant corporation counsel for the borough of Brooklyn that no relief to existing nuisances can be had under said proceedings.

"In view of the serious nature of the nuisances existing at the aforesaid premises, and the danger to the lives of the occupants of adjacent premises, I respectfully recommend that the department of public improvements of the city of New York be requested by the Board of Health to take such action and measures as they shall deem proper to abate said nuisance.

"CHAS. F. ROBERTS, M. D.,

"*Sanitary superintendent.*"

On November 5, 1898, I forwarded a report from the assistant sanitary superintendent of the borough of Brooklyn, as follows:

"I have the honor to report as follows in regard to the nuisance caused by the discharge of sewage from the Grand street and Metropolitan avenue sewers of the borough of Brooklyn into the canal emptying into Newtown creek:

"The area drained by these sewers is bounded by Metropolitan, Maspeth and Bushwick avenues, Olive, Ten Eyck, Waterbury, Maujer and Grand streets.

"The Grand street sewer is a 30-inch brick sewer; the Metropolitan is an 18-inch pipe sewer. A short distance from the canal these two sewers unite and discharge into the creek at the Grand street bridge.

"The population of the area drained is about 5000 persons, based upon the last registry of voters. Calculated from the usual quantity and quality of sewage of American cities, one-half ton of solid material would be discharged into this canal daily from this area.

"This material is discharged into this canal, which is a stagnating arm of Newtown creek about 150 feet wide at a point about 3200 feet from its junction with the creek proper. A portion of this canal is bulkheaded, but for the most of its distance it flows through marshy ground which is flooded during high tide. The suspended solids in the sewage, a black, putrefying material forms and deposits on the surface of these marshes, and during the summer months emits foul and offensive odors, which are carried by the winds into the densely populated portions of this borough.

"The waters of the canal are black and putrefying, sulphuretted hydrogen escaping in large amounts therefrom; its presence is manifested at a distance of more than a mile from the creek by characteristic discoloration of lead paints. Incoming tides carry the sewage up the canal above the Grand street bridge, where it also deposits and putrefies.

"In the year 1895 plans were prepared and approved for a system of sewers to drain a portion of the 18th ward, north of Grand street and along Newtown creek. A sewer was to have been constructed along Morgan avenue, intercepting the Grand street and Metropolitan avenue sewers, and discharging into a large trunk sewer, 12 feet in diameter, on Johnson avenue.

"This plan if carried out, would have relieved the creek of this drainage.

"In the proceedings for the opening of Morgan avenue difficulties were encountered which led to the abandonment of the plan.

"The opening of Morgan avenue and the construction of a sewer connecting the Metropolitan avenue and Grand street sewers with the 12-foot trunk sewer on Johnson avenue is, in my opinion, the proper means of abating the nuisance caused by the discharge of sewage from the Grand street and Metropolitan avenue sewers into the canal emptying into Newtown creek.

"R. A. BLACK, M. D.,
"Assistant sanitary superintendent."

In regard to the same I reported as follows:

"Respectfully forwarded to the board. The above report shows that if the short connecting sewer in Morgan avenue were constructed, it would prevent the discharge of from 180 to 200 tons per year of solid sewage matter into Newtown creek canal.

"The discharge of this amount of sewage into that portion of the canal, as shown on the attached map, is one of the greatest sources of defilement of Newtown creek, and owing to the offensive emanations from the same cause sickness among the occupants of the houses in this vicinity, and I respectfully recommend that a copy of this report be forwarded to the commissioner of sewers, with the request that means be taken at once to have Morgan avenue opened, and the sewer connecting the Grand street and Metropolitan avenue sewer with the Johnson avenue sewer constructed.

"CHAS. F. ROBERTS, M. D.,
"Sanitary superintendent."

Up to the present time no action has been taken by the department of sewers, as, owing to legal delays, portions of the streets mentioned in above report have not been opened and the sewers have not been constructed.

OFFENSIVE TRADE FACTORIES

Constant and persistent efforts have been made during the entire year to have the offensive trade factories situated upon the border of the creek placed in such a condition that, although the commercial interests of the city of New York shall not be inter-

fered with, the nuisances which have existed there shall be abated.

The creek and adjacent property being in two boroughs of the city of New York, I have personally superintended the inspections, and the complaints and reports and recommendations to the Board for orders have been made directly under my supervision.

Complaints in detail were made in regard to all offensive trade factories found to exist, special attention being given to those in the list published in the reports of the State Board of Health.

The following is a copy of one of the complaints forwarded, which will serve as a type of all:

"Said premises consist of a (* * *) of which (* * *) are owners, and in violation of sections 99 and 100 of the Sanitary code, were found in a condition dangerous to life and detrimental to health, for the following reasons:

"That the bones stored at said premises omit offensive odors; that during the process of filling retorts with bones very offensive odors are emitted.

"That the open wells, used for receiving the products of condensation from retorts, permit the escape into the open air of offensive odors.

"That the saturating tub and connections leak, allowing the escape of offensive odors, resembling burning bone.

"That the concentration vat for the recovery of sulphate of ammonia gives off vapors charged with offensive odors of an extremely penetrating character.

"That the hood for confining the vapors arising from the concentration vat is faulty in construction, leaking at every joint. This permits the escape of offensive vapors and odors from the vat.

"That the condensor for destroying the vapors and odors from the concentration vat and hood is faulty in construction, permitting the escape of offensive odors into the open air.

"That large quantities of bone black dust are discharged into the open air during the progress of crushing.

"That during the process of acidifying bone black dust and tankage, sulphurous acid fumes of a very offensive character are emitted.

"That the receiving shed and conveyor for butchers' refuse is filthy and in an offensive condition. The discharge of refuse water and steam in the digester at frequent intervals during the cooking through the blower into a small, inadequate water condenser, permits the escape into the open air of foul and offensive odors.

"The discharge of the waste liquor from the grease vats and digesters into Newtown creek is a serious nuisance.

"Recommend that the nuisance caused by the manufacture of (* * *) by the (* * *) be abated; or the manufacture of (* * *) at said premises be discontinued."

Large number of complaints of this character were made, and orders of the Board of Health issued to abate the nuisance complained of. In some cases the orders have been complied with in full, and a permit to continue the manufacturing business engaged in has been granted by the Board. In others the work of making improvements called for is still in progress.

In other cases nothing has been done, and I purpose in the near future to recommend to the Board, in cases where the full requirements of the Board of Health have not been complied with, that an order be issued declaring the said premises a public nuisance, and that said offensive trade factories be closed.

As a result of this active work on the part of the department of health during the past year the number of offensive trade factories in the locality adjacent to Newtown creek have been very much reduced, and their condition and the character of the work performed in each is as follows:

NO NUISANCE; HAVE PERMIT

Queens County Oil Works, manufacturing paraffine, oils, etc., from crude petroleum.

Preston Fertilizer Works, manufacturing fertilizer.

Van Iderstein Bros., manufacturing tallow, scrap, etc.

Eastern Distilling Company, manufacturing spirits and yeast.

United States and Canada Degreasing Works, extracting grease from hides before tanning.

J. Rosenberg, manufacturing tallow, scrap, etc.

Sone & Fleming, manufacturing coal oil from crude petroleum.

NEW WORKS TO BE BUILT; PLANS TO BE APPROVED BY THE BOARD OF HEALTH

Acme Fertilizer Company, manufacturing bone black, ammonium sulphate and fertilizer.

Nichols Chemical Works, manufacturing acids, chemicals, etc.

ORDER ON PREMISES; AT WORK, NEW APPLIANCES BEING ADDED

Reed Fertilizer Works, manufacturing fertilizer.

L. I. Agricultural Company, manufacturing fertilizer.

Peter Cooper Glue Works, manufacturing glue.

ORDER ON PREMISES; IN SUIT

Moller & Company, manufacturing bone black, ammonium sulphate and fertilizer.

Suttle Bros., tannery.

Wm. Marshall Paper Company, manufacturing paper.

TEMPORARILY CLOSED; NO NUISANCE AT PRESENT

Columbia Distilling Company, manufacturing alcohol from molasses.

NIGHT SOIL BOAT AND DEAD ANIMAL WHARF

At times of inspection throughout the year the night soil boat and dead animal wharf have been found in good sanitary condition, and no cause found for action on the part of the Board of Health.

ALBANY, *March* 10, 1899

C. GOLDERMAN, *Secretary Department of Health, New York:*

Dear Sir—I am in receipt of your communication of the 8th instant, enclosing a copy of the result of the inspection of Newtown creek now being carried on by your department, and note your statement that a copy of the same has been forwarded by your department to Hon. Theodore Roosevelt, governor of the state of New York, in accordance with the terms of a resolution

offered by Dr. A. H. Doty and adopted by the State Board of Health at its meeting held February 23, 1899.

Very respectfully,
BAXTER T. SMELZER,
Secretary

BARREN ISLAND INDUSTRIES

NEW YORK, *January* 9, 1900

BAXTER T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—The season of 1899 at Barren island was notable mainly as being the test of the efficiency of the Arnold system of disposing of the garbage of the city of New York.

Extensive and costly sanitary improvements were completed previous to the beginning of the summer season, and the capacity was ample, 96 digesters being in service;—a steam plant equal to any demand; press and drying rooms fully equipped.

The most important of the improvements was that for the control of the vapors escaping from the material after being taken from the digesters, which in previous years had been allowed to escape through the skylights and other openings into the outer air.

This improvement, which has been explained in detail in a previous report, was largely a success; the building was kept closed and none of the vapors escaped, except that which failed of condensation, which was very little, except when the supply of water was short, which was sometimes the case in the early part of the season before the new water supply system was completed.

This system, which was also a very costly improvement, was the next in importance; it insures an abundance of water in every part of the plant at all times. All the condensers connected with the digesters were duplicated, so that if, for any reason, one

MAP OF NEWTOV



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should fail to do its work, connection could be made immediately with its substitute.

The most serious mishap of the season occurred in August, a strike among the men in the press rooms causing an interruption of the work and a considerable accumulation of garbage. When the difficulty was settled the work was forced necessarily, and two scows being often unloaded at one time; the material being in a state of partial decomposition was, of course, most offensive, and the result was what might have been expected. Fortunately the wind at this time was almost continuously south of east, all of the nearby resorts thereby escaping; but the people traveling between Brooklyn and the Coney island resorts and those residing in that sparsely settled district were not so fortunate.

This is the first season since we have had an inspector on Barren island that no complaints have been received from Manhattan beach.

During the year a number of letters, addressed generally to the Governor, complaining of foul odors from the island have been referred to our inspector. Partly in consequence of these the inspector has made a number of visits to Arverne and Rockaway, interviewing several of the writers of these letters, but more especially others, visitors as well as residents of these places, and has found that aside from members of the "Anti-Barren island league," there was little or no complaint, even members of the "league" reluctantly admitted that the odors were not nearly as bad as in previous years.

The inspector has also frequently visited the Coney island resorts, Canarsie and Bergen beach, and found none to complain in any, except at Bergen beach, and very little complaint was made there, the nearest resort to Barren island.

It is believed to be a fact that with prompt collection and delivery of garbage, with the present capacity and appliances, that the present method of disposal is adequate to the needs of the people of the city of New York.

While under certain atmospheric conditions the odors from this plant can be detected at the places from which these complaints are sent, it is so modified by the appliances before mentioned that

it is scarcely noticeable, and is not in any way injurious or detrimental to health or comfort.

It is submitted that the fact that the thousands of well-to-do people who filled the hotels and boarding houses in these places remained there, many of them during the entire summer season, is a complete and final refutation of the charges made in these letters of complaint.

As to the other establishments on the island, nothing but praise can be mentioned; they are all well managed and in good sanitary condition.

During the year I have made weekly visits to the island as a rule. Since November 1, I have visited there about once in 10 days.

Respectfully submitted,

ORVILLE LEWIS,

Inspector

DEPARTMENT OF HEALTH, BOROUGH OF MANHATTAN,

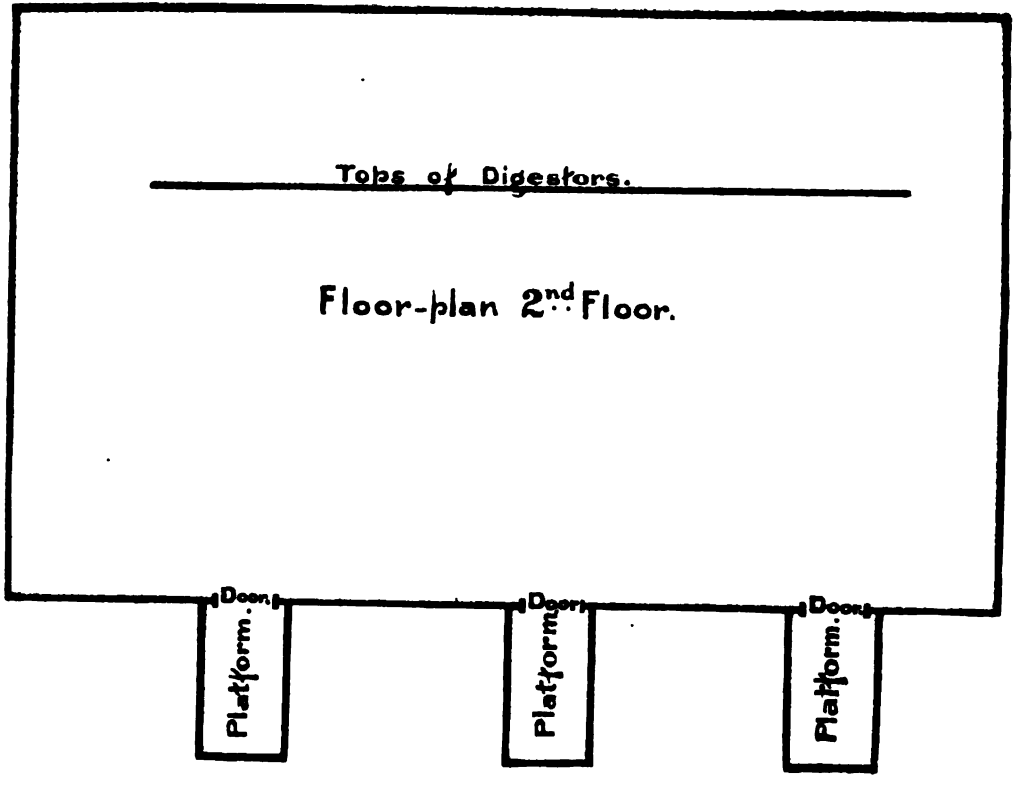
THIRD DIVISION, CRIMINAL COURT BUILDING,

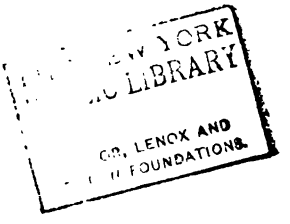
NEW YORK, *April* 1, 1899

To the Hon. MICHAEL C. MURPHY, *President of the Board of Health of the Department of Health of the City of New York:*

Sir—On July 6, 1898, the condition of the industries in operation on Barren island were such as to still cause a nuisance, to those living within eight to ten miles, from the offensive odors given off, and while much had been done to ameliorate these nuisances, both by the addition of improvements to some of the works, and also by the removal of others, notably that of the American fisheries company, yet much remains to be accomplished, for the increase in the amount of material treated, from the rapid growth of our city, increased the time during which the odors were given off.

It was resolved, therefore, by the present board of health of the department of health of this city that steps be taken to either permit the industries to continue, provided they could be so constructed as not to cause a nuisance of any kind, or, if that was


Tops of Digestors.
Floor-plan 2nd Floor.
Door
Platform.
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found to be impossible, to revoke all permits, no longer permit any of the works to continue their operations, but if continued not to allow any works of a similar nature to be erected, but to confine the operations carried on at Barren island to the disposal of the city's refuse in a sanitary manner.

A committee was appointed by a resolution of the board of health at a meeting held on July 6, 1898, as follows:

"On resolution of Commissioner York the president appointed a special committee, consisting of Commissioners York and Jenkins, to whom was referred all reports and complaints in respect to nuisances at Barren island for investigation and report."

This committee selected Edward W. Martin, chief inspector third division, borough of Manhattan; Joseph B. Taylor, inspector of offensive trades, borough of Brooklyn, and Hon. John Bogart, formerly state engineer, to make investigation and report with conclusions and recommendations to the committee as follows:

First—The industries carried on at Barren island.

Second—Nature of same.

Third—Character of machinery used.

Fourth—Means of conducting business.

Fifth—And whether it is possible, with the plants now in use to avoid the offensive odors now complained of.

Sixth—If any improvements are capable of being made in the present plants to accomplish the purpose.

Seventh—To determine whether the use of the plant now in operation on Barren island should be discontinued. The required investigations were made by the experts selected by the committee and their reports and conclusions were transmitted to said committee.

NEW YORK, *July* 25, 1898

To the Committee of the Board of Health for the Investigation of the Nuisances complained of as existing on Barren island:

Gentlemen—I have the honor to submit the following report which, according to your instruction of July 19, I made of the

industries now carried on at Barren island. On July 23 I inspected the following plants:

New York Sanitary Utilization Company; 800 tons of garbage daily made into fertilizer and oil.

P. White's Sons: Horses and all dead animals, fish from markets, hotel refuse, and offal from slaughterhouses made into hides, fertilizer, oil, etc.

E. J. McKeever: Horses and all dead animals and offal made into hides, fertilizer and oil, etc.

E. F. Coe Company: Fertilizer made from phosphate rock, dried blood, dried fish, potash and sodium nitrate.

The following is the process employed in the above mentioned plants:

FIRST—NEW YORK SANITARY UTILIZATION COMPANY

The garbage from scows is shovelled in conveyer and conveyed to digester floor and dumped into digesters through pipes, then cooked (depending upon the kind of garbage) from six to nine hours, at 60 to 65 pounds pressure; then dropped to receiving tanks below to make room for refilling, then taken from receiving tanks to presses as they can take it. The oil is then pressed out from cooked garbage for about one-half an hour, the pressure being over 250 tons; after the oil is pressed out of it the garbage is thrown into hopper and conveyed to floor above and dumped into feed-pipe to dryers. Time of drying depends on kind of garbage, from one and one-half hours to two and one-half hours. Temperature of feeding room on floor above is 91 degrees F. The ceiling of drying room is 110 degrees F.

After drying the garbage is conveyed under ground to screen house and screened and packed in bags. The "pickings" (tin cans, boxes, etc.) from scows are picked out on conveyers before going to digesters. The oil pressed out from cooked garbage runs from presses to catch basins and oil is pumped off top to oil tanks and settled, a little steam being run in.

The water from catch-basin runs into three effect evaporators and is condensed; the stick material remaining is pumped out and

put into dryers with pressed garbage. Condensed water runs back into the bay.

The following facts in relation to plant I obtained from W. E. Brown, superintendent: Full running capacity, 2,000 tons garbage daily (24 hours); amount received at present from 700 to 800 tons garbage daily. Number of men employed at present, 230, and 460 should plant be obliged to run for 24 hours.

The machinery, etc.:

Number of digesters	96
Number of presses	24
Number of catch-basins	24
Number of evaporators (3 effect)	1
Number of receiving tanks	24
Number of engines	4
Number of dryers	20
Number of oil-storage tanks	9
Number of screens	5
Number of conveyers	2
Number of steam boilers	14

The work is carried on from 7 a. m. to 5:30 p. m., except Saturdays, when work begins at 6 a. m.

The filling of digesters begins at 7 a. m., and each digester requires about eight minutes to fill. Each digester is filled once each day except Saturdays, when 12 are filled twice. The last digester is emptied at 4 p. m. They do not work on Sundays.

The scows arrived at time of inspection at 11 a. m., but their arrival depends on the tide; they come from foot of Canal, Rutgers, East Forty-sixth and East Forty-seventh streets; also One Hundred and Tenth street, borough of Manhattan; and foot of Ninth street, borough of Brooklyn. The scows leave boroughs of Manhattan and Brooklyn as soon as they are loaded.

The material used is the ordinary garbage collected from houses by street cleaning departments in boroughs of Manhattan

and Brooklyn. The entire process requires about 10 hours from time garbage is taken from scows until it is converted into oil and fertilizer.

It never happens that the scows cannot come down on account of storms, for in rough weather they take what is known as the "inside course." The amount of garbage is smaller in winter than in summer. Time of transit from four to six hours.

The gases and vapors from the digesters during the cooking process are condensed by being blown off into an eight-inch pipe, through which water from the bay is pumped. This water is returned to the bay and discharged below tide-water 15 feet beyond end of wharf (see floor plan). Smith's disinfecting powder is used about the plant and sanitas on the scows. The latter after unloading are washed with hot water and sprinkled with sanitas.

The process of the evaporation of the water in the catch-basins, after the oil has been pumped, is as follows:

Three cylinders of iron in which are arranged a number of horizontal brass pipes, through which steam is allowed to circulate, are employed. The water pumped from the catch-basins runs over these pipes and is conveyed into steam and then condensed and allowed to run to the bay in a clean condition.

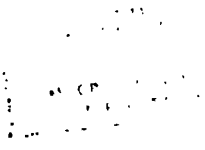
The material from the pressing remaining in the water is left behind (this is called "stick") and is drawn from the evaporators and mixed with garbage in the dryers.

They have no duplicate apparatus in case of breakdowns, but parts are kept on hand to replace any broken. No breakdowns of any account have occurred. A chain on the conveyers might break, when a new link could be put in in ten minutes without shutting down; or a column in the presses might break, which could be replaced.

The area for the collection of garbage covers all of the boroughs of Manhattan and Brooklyn. The garbage is not more than two days old when it arrives.

The capacity of the digesters is eight tons each, or making a total of 786 tons.





There are eight oil-storage tanks in the oil house and one large one outside with a capacity of approximately 118,504 gallons. The oil is run from storage tanks to barrels for shipment.

SECOND—P. WHITE'S SONS

From the boats, horses, etc., are hoisted up to the second floor. The hides are removed from the horses, which are cut into six pieces and put into the digesters (rendering tanks) with the offal, dead animals, etc. The cooking is carried on in winter from eight to nine hours, and in summer six hours. The oil is run off the tops of digesters and the cooked material dropped from the digesters and pressed at 2000 pounds per square inch. The oil is run off to catch-basins and pumped from the water and bleached and stored. The pressed material is taken to the dryers, dried and stored.

The water from the catch-basins runs into the bay at present, as pump is broken; this will be repaired in about a week and then the water will be evaporated in the same manner as in the New York Sanitary Utilization Company's plant.

The following facts in relation to plant I obtained from Mr. Ford, superintendent. Full running capacity: Horses, 800; offal, 60 tons; hotel refuse, 67-70 tons. Amount received at present: Horses, 40-50; offal, practically none; fish, from 5 to 6 tons daily, except Friday and Saturday; fish, Friday and Saturday, 20-30 tons; hotel refuse, 50 tons. Number of men employed at present, 61; at full running capacity, 80.

The machinery, etc.:

Number of digesters	34
Number of presses	2
Number of catch-basins	6
Number of evaporators (3 effect)	1
Number of engines	1
Number of dryers	4
Number of oil-storage tanks	6
Number of steam boilers	3

The work is carried on from 7 a. m. to 5:30 p. m. Very seldom work overtime.

The digesters are filled at any time; always cooking garbage from nine to ten hours. Four digesters are dropped at 7 a. m., after cooking all night, and the rest in order. They work Sundays.

The boats come in between 9 a. m. and 12 m. They come from offal dock foot of East Thirtieth street, leaving New York at 7 a. m.

The materials taken are dead horses and all dead animals, fish, fruit and hotel refuse, offal from slaughter houses. The entire process requires 15 hours from time materials are taken from scows until they are converted into oil and fertilizer.

The boats are very seldom prevented from coming down; only once in two years.

The uncondensable gases and vapors from the digesters are not taken up by blow-off into water, but are burned under boilers by being passed through coal.

Sanitas is used as a disinfectant in plant and on boats. As above stated, the water in catch-basins runs into bay while pump is being repaired, which will take about one week. When the repairs are completed the process will be the same as is used in the New York Sanitary Utilization Company's plant.

They have no duplicate apparatus, but Mr. Ford told me that nothing could stop work; they might, however, stop for one-half hour.

The area for collection covers the boroughs of Manhattan and the Bronx.

The capacity of digesters is from three to four tons each, or from 102 to 136 tons.

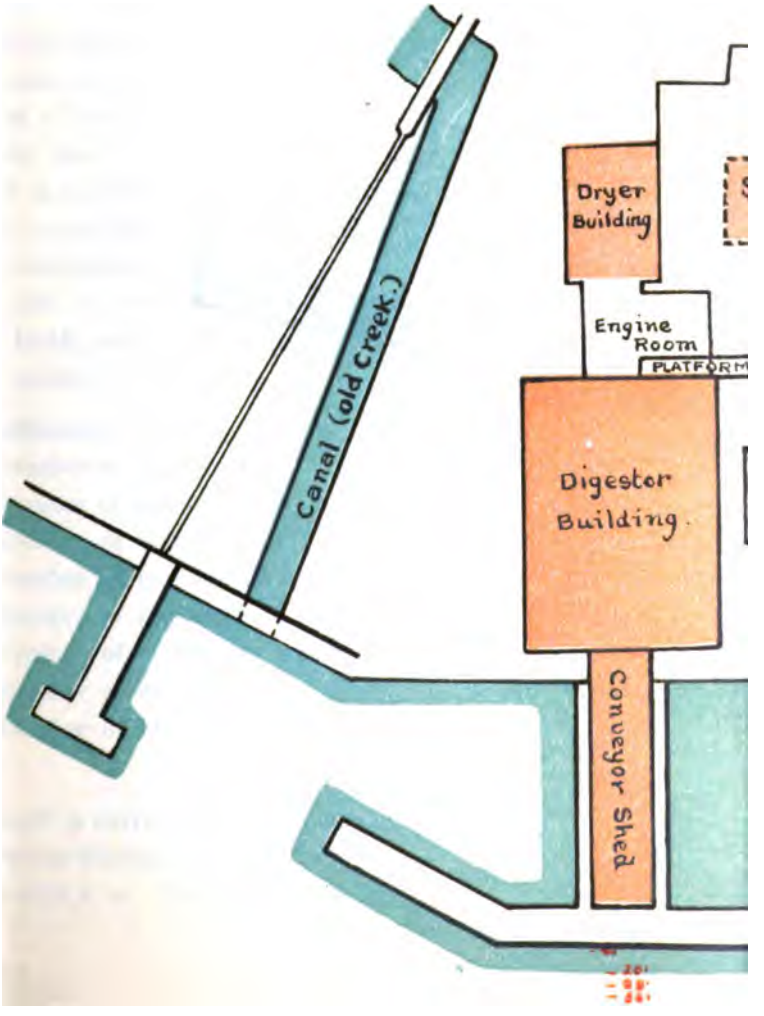
The oil-storage house has a capacity of 50,000 barrels of oil, or about two million gallons.

The fish and offal is sent down in boxes which, when emptied, are whitewashed. Horse boat is disinfected with sanitas.

Groundplan of the New York-Sanitary Utilization Co.

[redacted] SHOWING BUILDINGS IN WHICH OPENINGS SHOULD BE CLOSE

Scale Inch = 90 feet.



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THIRD—E. J. MCKEEVER

Horses, dead animals, offal, etc., are hoisted from lighter to second floor, and the skins taken from the horses; all the materials are then taken and put into the digesters, which are then sealed and cooked from three to four hours at 30 to 40 pounds steam pressure.

The cooked materials are then dropped from digesters into press and pressed at 1800 pounds to square inch pressure, to remove oil; the materials are then dried in a Smith's jacketed dryer, at 50 pounds pressure. It is then screened through hand-screens and screenings bagged and shipped. The refuse from the screenings is burned. The oil is run off from the top of digesters, being blown into blow-off tanks and from there into tanks. The evaporation of the water left after the oil is skimmed off is conducted in a Yargan, three effect evaporator, and the process is practically the same as that described above.

The oil is washed in tanks and shipped in tierces. The following facts in relation to the plant I obtained from James Shackelton, superintendent. Full running capacity: Horses, 300; tons of offal, 50. Amount received at present: Horses, 15-20; tons of offal, 10-15; number of men employed at present, 20, which is the full number employed.

The machinery, etc.:

Number of digesters	18
Number of presses	1
Number of evaporators (3 effect)	1
Number of engines	1
Number of dryers	1
Number of oil-storage tanks	15
Number of screens (hand)	4
Number of blow-off tanks	3

The work is carried on from 6 a. m. to 4 p. m. The filling of the digesters begins 9 or 10 a. m. They are filled once and are dropped at 6 p. m. They work Sundays.

The boat arrives at about 9 a. m., and comes from foot of Maspeth avenue, Newtown creek; it leaves Brooklyn between 5 and 6 a. m. The materials used are dead horses and are from the borough of Brooklyn.

The entire process requires about seven hours, and the work is finished at about 2 p. m.

It never happens that the boats cannot come down, for if boat breaks down they would charter another.

The gases and vapors from the digesters are blown off into a sealed tank and then condensed in a jet condenser. The water from the condenser goes into a hot well and from there into the bay.

The disinfectants used are Smith's and Pasteur's. The process of the evaporation of the water from which the oil is skimmed off is practically the same as that used in the New York Sanitary Utilization Company's plant and P. White's Sons.

The "stick" is mixed with the pressed material and dried. They have everything in duplicate; never had a breakdown, with the exception of small pumps; did not stop work.

The area covered by the contract of this plant includes all of the borough of Brooklyn. The materials come down every day.

The capacity of the digesters:

13 5-ton digesters	65 tons
5 10-ton digesters	50 tons
Total	115 tons

There are 15 oil-storage tanks containing about 3000 gallons each, or 45,000 gallons in all. Boxes for offal when empty are washed and disinfected every day.

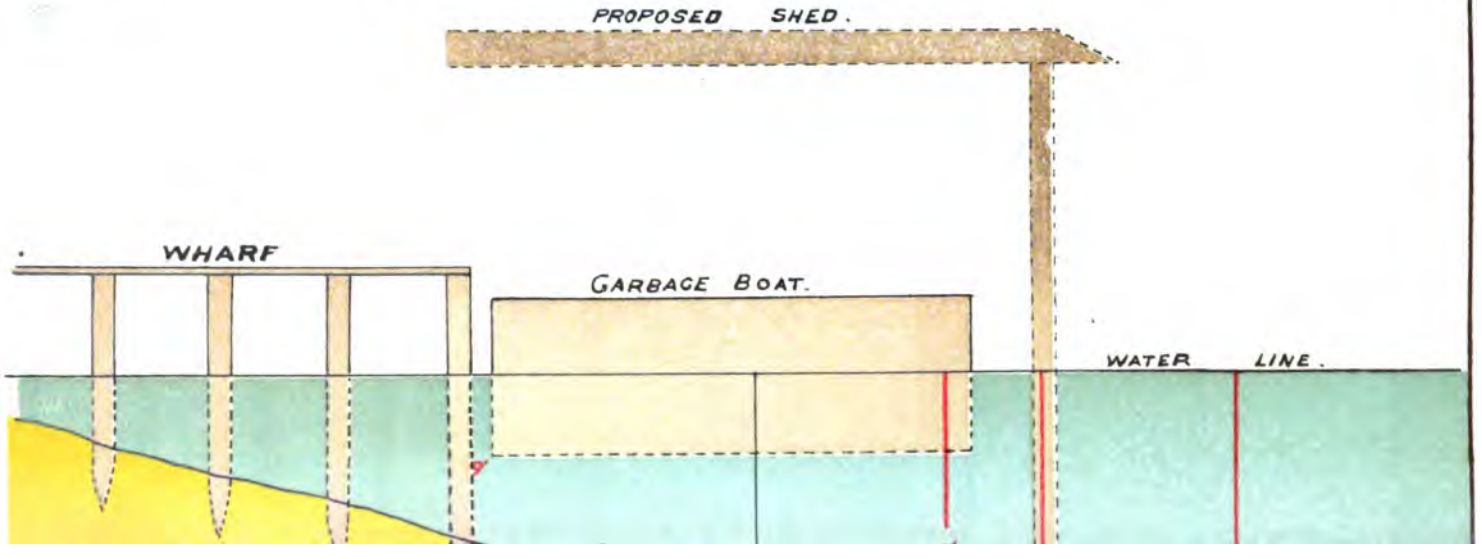
FOURTH—E. F. COE COMPANY

The materials used in this plant are Charleston phosphate rock, dried fish scraps, cured horse meat, dried blood, potash and a little sodium nitrate. The rock is ground to the fineness of flour in rock mills; the other materials are also ground in phos-

BARREN ISLAND

SANITARY UTILIZATION COS WORKS

CROSS SECTION OF WATER FRONT WHERE GARBAGE IS UNLOADED FROM BOATS.



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TILDEN FOUNDATIONS.

phate mills and mixed in varying proportions. This mixture is then heated with sulphuric acid. The treating with sulphuric acid is done in a mixing pan eight feet in diameter. This pan is enclosed in a tight room, the gases are drawn up by means of a seven-foot blower. These vapors are forced by the blower in the lower part of the chamber, 32 x 32 x 10. As the gases rise they are caught by a spray of water; this water runs through a pipe out into the bay below low water. All of the work is done between the first of October and the end of May, and the fertilizer is stored until wanted for shipment. Before shipping the fertilizer is remilled and bagged. All of the animal products are cured and dried, so that there is no rendering on the premises.

The following facts in relation to the plant I obtained from William Mullin, superintendent:

At full running capacity they turn out 300 tons of fertilizer in 10 hours. Number of men employed at present, 50. About 100 when plant is running. The 50 men now employed are making repairs and filling small orders.

The machinery, etc.:

Number of engines (500 horse-power)	1
Number of phosphate mills	3
Number of rock mills	3
Number of mixing-pans	1
Number of conveyers	10
Number of screens	3

The work is carried on from 7 a. m. to 5:30 p. m. They do not work Sundays, except in case of breakdowns.

The boats bringing materials come at different times. All machinery is in duplicate in case of breakdown. The repairs necessary are made during the summer, when the works are shut down. Never had a breakdown that delayed them 12 hours.

The fertilizer can be produced in 48 hours, but is an inferior article, and six months is required to produce a high grade.

They now use pure sulphuric acid and not sludge acid, and this acts as a disinfectant.

RECOMMENDATIONS

NEW YORK SANITARY UTILIZATION COMPANY

The offensive odors discharged from the plant of this company are from three sources, viz.:

A. Odors from untreated garbage.

B. Odors from treatment of garbage.

C. Odors from one of the finished products (fertilizer).

(A) The odors from untreated garbage arise—

First—From the garbage on the scows at docks during its transferal to the elevators.

Second—The raising of the garbage to the upper floor where the digesters are located. The open windows cause currents of air to pass through the building, and the upper floors being the warmest cause an updraught, as in the upcast of a mine.

The odors of untreated garbage are in this way carried to the highest elevation of the building, the hot air carries it still higher outside and in this way permits the transmittance of the odors to the maximum distance, depending upon the height of the barometer, the temperature of the air and the velocity and direction of the wind and rainfall.

(B) The odors of the garbage during the process of manufacture—

First—These odors are due to the filling of the digesters whereby a certain amount of hot vapor is given off, and scraps falling on top of the digesters become heated and charred by contact with the hot surfaces.

Second—The odors arising from the emptying of the digesters.

Third—The odors arising from the pressing of the digested garbage, and in general from any leak, or from carelessness of the employees; although this latter cause is, in my opinion, reduced to a minimum under the present superintendent, a Mr. Brown.

All of these odors under section B are those of treated or partially treated garbage, and different from that of the untreated; not as offensive, and characteristic of the burning of any refuse

of this nature, and having a decided odor of caramel. It is not carried as far from the works as odors arising from garbage untreated.

(C) The odors arising from the grinding, sifting and bagging of the pressed and dried materials escaping from the windows and doors of the fertilizer house. This fertilizer is of a very light nature, finely divided and flocculent; and carried by a suitable wind, particularly during dry weather, to a distance of many miles (I should say 10 was certainly not the maximum distance), and each little particle will give off offensive odors for an indefinite period so long as it remains in a dry condition.

Such being the nuisances caused, the next step is the remedy, if any; and in my judgment it is possible and practical to conduct the business in a manner entirely sanitary and without the discharge of any offensive odors whatever, as follows:

First—The untreated garbage must be so taken from the scows and placed upon the elevators as not to come in contact with the outside air. That is, the scows must be floated under a shed, or drawn up by a marine railway under a shed so that no odors can escape.

Second—The plant itself must have all openings and windows closed, and the air required driven into the room by suitable fans or blowers.

Third—The air being drawn off in a similar way, discharging into a scrubber or scrubbers provided with large quantities of water, greatly in excess of the theoretical amount; said water to be charged with some deodorizer, preferably hypochlorite of soda, which can be made from the sea water of the bay. The effluent being discharged under the waters of the bay at a point below low tide by means of suitable pumps, and all fans, blowers, pumps, scrubbers and apparatus necessary for the purpose above mentioned be erected or placed in duplicate, so that the breaking down of one set will not cause a nuisance from the consequent lack of control which would result if only one set were to be employed.

An experience of some 15 years in dealing with just such problems as the one under consideration, for this department, has shown me conclusively that when any operation is carried on which is offensive on account of odors produced, no system of condensers or appliances to take away and deodorize offensive gases is adequate, if the building or room in which such operations are carried on is not air-tight and supplied with suitable fans or blowers to—

First—Force what air is necessary into said building or room, and

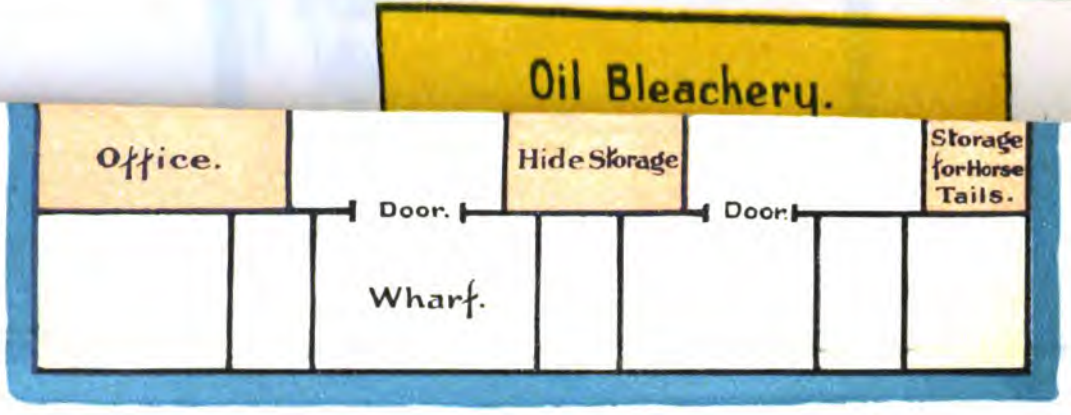
Second—To draw off the air from the same. It is necessary to have suitable condensers, etc., but if the building itself has direct connection with the outside air, any leak or break in the apparatus must become a source of nuisance, as will also offensive material awaiting treatment,

Again it is always necessary to pass gases not condensable, in order to decompose them into odorless compounds, *through* a bed of red-hot coals and not *over* them.

The transportation of the garbage is a matter of great importance during the hot weather; and the present form of boat is not suitable. A boat should be used no larger than is necessary to hold the amount of garbage brought to it during 12 hours or at the most 18 hours, and should be so constructed as to close in a reasonably tight manner, and the air outlets sealed by a water seal of, say one to two inches, containing deodorizers. The garbage should be deodorized as it is placed in the boat, and during its passage to Barren island should have deodorizers thrown upon it if it is found necessary. The result would be that the garbage would arrive at the island in a fresh and sanitary condition so as to omit the minimum amount of odor and be practically no nuisance during its passage to Barren island.

THE PLANT OF P. WHITE'S SONS

is in such a condition, as can be seen from the drawings and descriptions given, that if any nuisance is maintained on their premises it must be from culpable negligence. I have nothing to

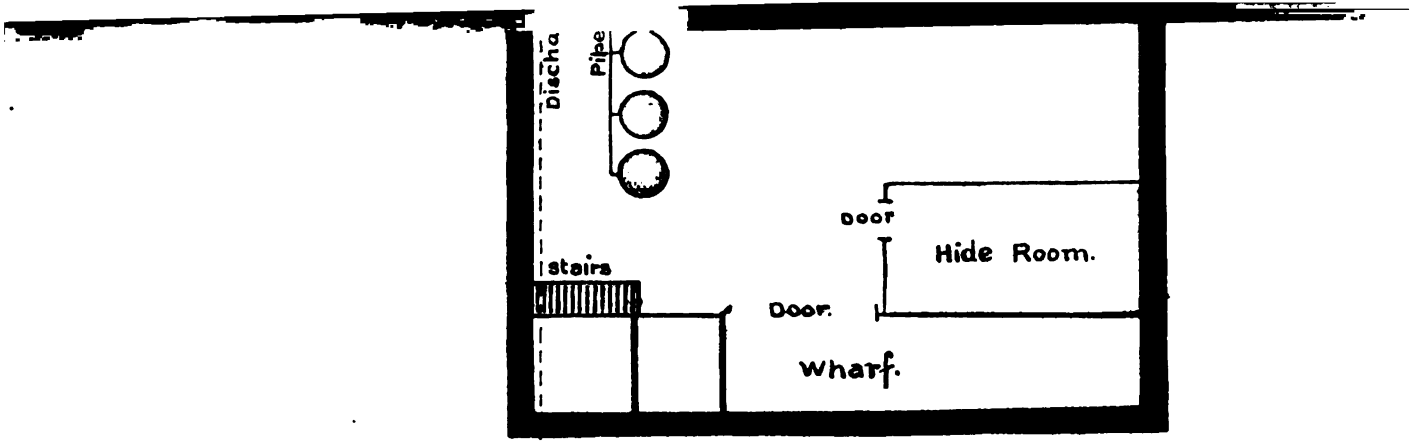


Groundplan of

P. WHITE'S SONS

Works.

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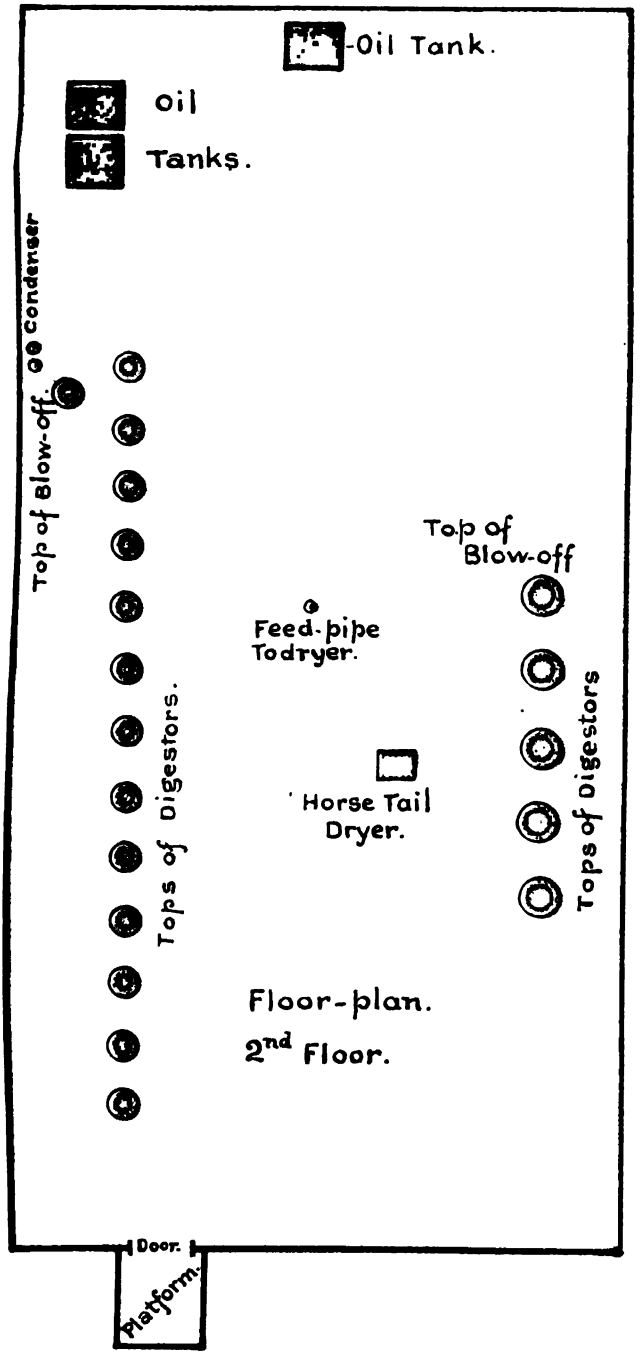


GROUNDPLAN OF

E.J.McKEEVERS

WORKS.

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Oil Tank.
oil
Tanks.
Condenser
Top of Blow-off.
Tops of Digestors.
Top of
Blow-off
Feed-pipe
To dryer.
Horse Tail
Dryer.
Tops of Digestors
Floor-plan.
2nd Floor.
Door.
Platform.

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suggest as to the methods now in use, except that the air outlets from the fertilizer house be so arranged as to prevent any little particles of fertilizer dust from being discharged into the air.

THE PLANT OF E. J. MCKEEVER

The same opinion holds good in relation to this plant as in that of P. White's Sons.

THE PLANT OF E. F. COE COMPANY

In this plant all odors and gases produced are condensed and rendered odorless, but the little particles of fertilizer from the grinding, mixing and storing of the same escape to a certain extent at times into the outside air; therefore, means should be taken to prevent this. Otherwise I have nothing to recommend as to this plant.

Respectfully submitted,

EDWARD W. MARTIN,

Chief inspector

My colleagues agreed with me in general as to these recommendations; and the companies operating on Barren island were notified by resolution of the board that these recommendations were adopted and must be carried out so as to comply, and that any assistance by the undersigned—as far as permissible under the circumstances—would be given.

The firms of P. White's Sons and E. J. McKeever at once complied. The New York Sanitary utilization company at once advertised for bids for the necessary construction and commenced work on September 20, 1898.

In compliance with a resolution of the board made on September 2, 1898, I have made a weekly inspection of the industries on Barren island, and particularly of the New York Sanitary utilization company's plant as to their compliance with the orders of the board, and make weekly reports to same board.

I also detailed two inspectors to make daily inspections and daily reports to me.

The work does not progress at all times as expeditiously as possible in my judgment, and I reported that to the board, who thereupon notified the company. The following report indicates the condition of the works on March 21, 1899:

THIRD DIVISION, NEW YORK, *March* 21, 1899

To the Hon. MICHAEL C. MURPHY, *President of the Board of Health, City of New York:*

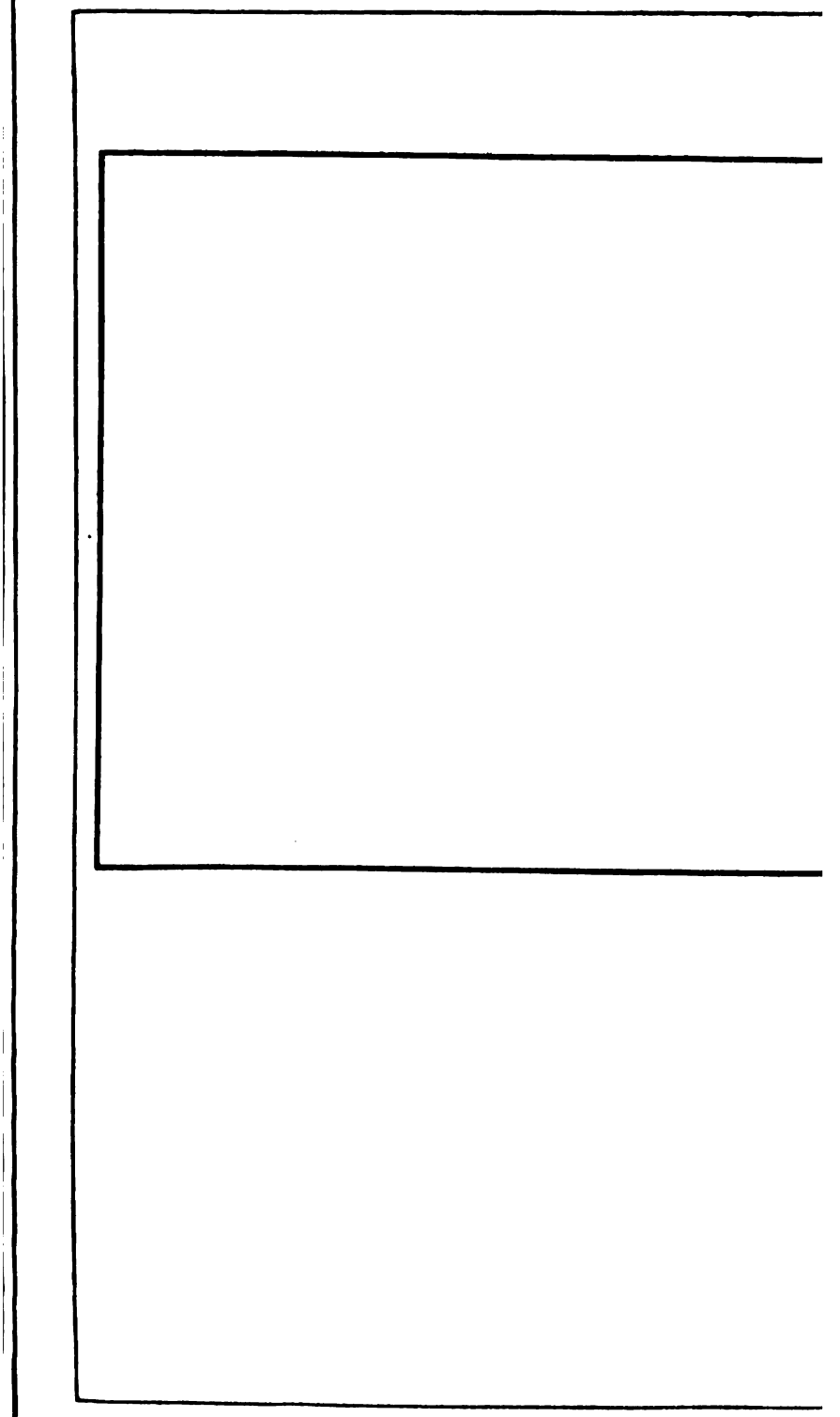
Sir—I have the honor to submit the following report in conformity with instructions from the assistant sanitary superintendent to determine the practicability of erecting a shed at the works of the New York Sanitary utilization company at Barren island to prevent the escape of offensive odors during the unloading of garbage from the boats.

In my first report to the committee of the board of health for the investigation of the nuisances complained of as existing on Barren island, I recommended that a shed be erected so that the boats containing the garbage could be floated under it, and in this way prevent the discharge of offensive odors during unloading. At that time, so far as I could ascertain, both from consulting with my colleagues and from facts obtained from those familiar with the location, this could be done.

Since that time the existing conditions have changed; new bars have formed, the position of the channel has altered, being nearer to the point where shed was to be erected. A breakwater built at a point (see diagram) was considered as a sufficient means to prevent these changes, but an examination made on March 21, 1899, indicates the present condition to be as follows:

The works of the New York Sanitary utilization company are situated at the easterly end of Barren island on a point of land near the channel leading to Jamaica bay and Rockaway inlet.

The wharf projecting from the conveyer is placed where the proposed shed is to be erected. The depth of water at the end of this dock is now about nine feet at high tide; 25 feet out, 20 feet; 30 feet, 28 feet; 40 feet, 50 feet.



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Owing to the peculiar formation of the coast, the sand shifts so that the bars are rapidly formed and the depth of water, not only in the channel, but to some distance from them, has been changed by many feet.

In the accompanying diagram I indicated the above facts. The light shading is that part under water which is subject to these variations.

In order to erect a shed of sufficient width to permit the floating of a garbage boat under it, we must have at least 30 feet in the clear between the edge of the dock and the inner side of the outside of the shed.

The existing conditions as it appears upon reference to the diagram, shows the spiles supporting the outer sides of shed would now be in the shifting sand, liable at the time of a storm, or any unusual conditions of wind or tide to be washed out, leaving, of course, the shed unsupported at that point. The above facts I have determined from a careful examination of the present conditions; and I would therefore state that to support the outside of a shed at the place required by means of spiles driven into the sand is now impracticable.

As to supporting the shed entirely from the dock proper, we must take into considration the lifting effect of a high wind and the unstableness of such a structure where the leverage exerted by the outer part is very great.

The place for the boats to lie under during unloading would have been in one of the slips at the side of the conveying house, but the excavation of a slip to the necessary depth might cause a change in the currents in the channel which would undermine both sides of the slip, with the subsequent washing away of the dock and buildings on the water front. This actually took place at or near this point some years ago, before the building of the breakwater.

The erection of a permanent shed, as indicated in the orders of the board, or the dredging out of a slip alongside of conveying building for the boats to lie in during the unloading, does not appear to be practicable.

Respectfully submitted,

EDWARD W. MARTIN,

Chief inspector

At the present date all of the requirements of the board have been complid with as to one plant (the "new works") and will have been complied with as to "old works" presumably on June 1, 1899.

There now remains to complete the coverings of the scows, duplication of that part of the building known as the "old works"; repairs to the plant for the production of hypochlorite of soda (electrozone) to disinfect the garbage while unloading, and to disinfect and prevent the discharge of offensive odors from the building.

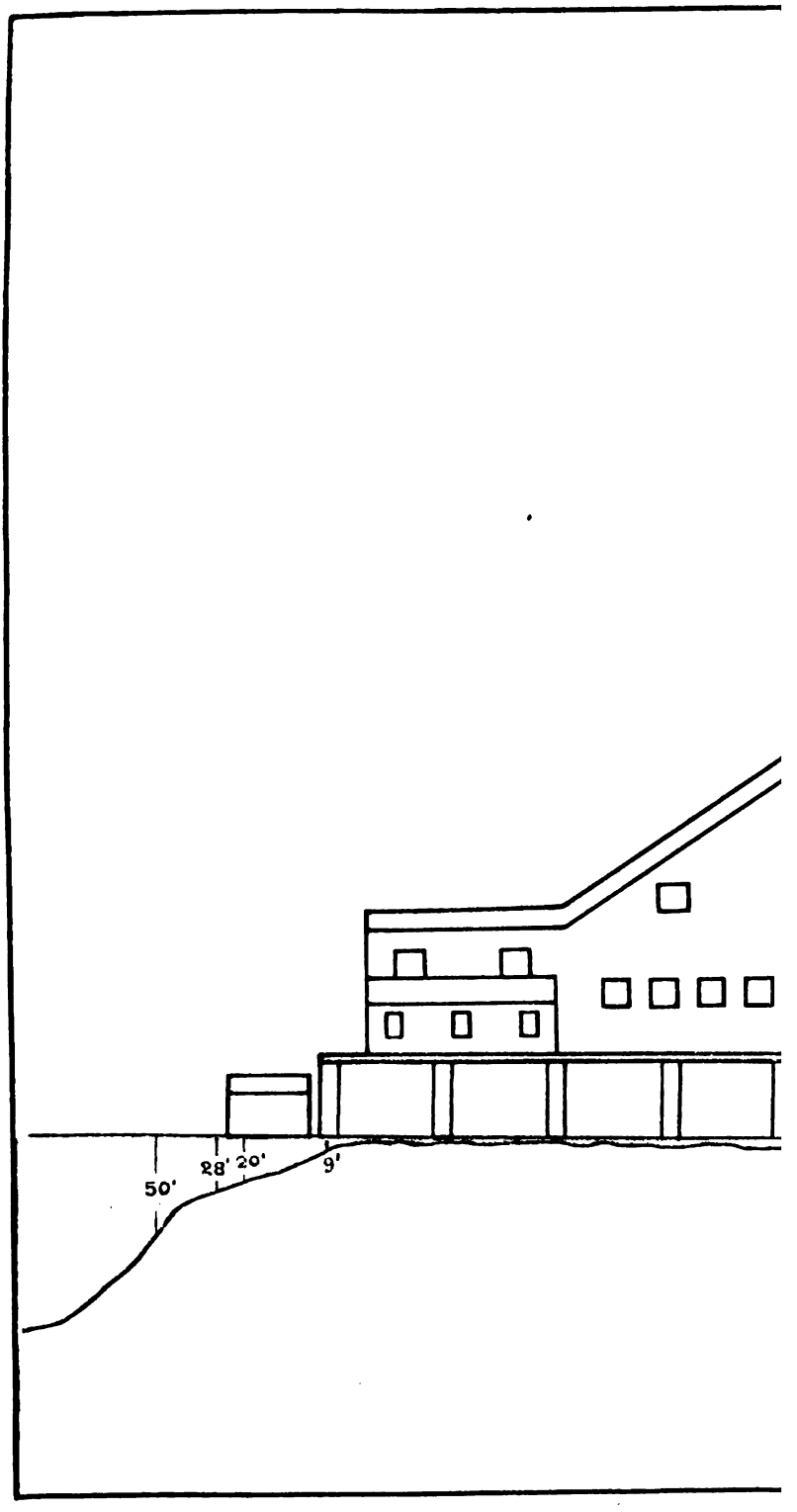
The inspections to determine if any odors are discharged while the plant for preventing same is in operation: This is being carried out and has so far substantiated my opinion as given above; and I could again reiterate that no nuisance should be caused if proper attention is given to the plant as now constructed; and from an experience lasting over a long period of time—some 20 years—in the service of this department, I know that even such operations could be conducted in such a manner that no nuisance could be caused if ordinary care was taken by those in charge of the plants.

In the borough of Manhattan there are several factories in which operations fully as offensive as those under consideration are carried on day and night, and yet for the past five years have not been the source of even one complaint. We must remember also that instead of there being miles between, as at Barren island and the nearest houses, here in New York these works are only a few feet distant (150) from the nearest dwellings.

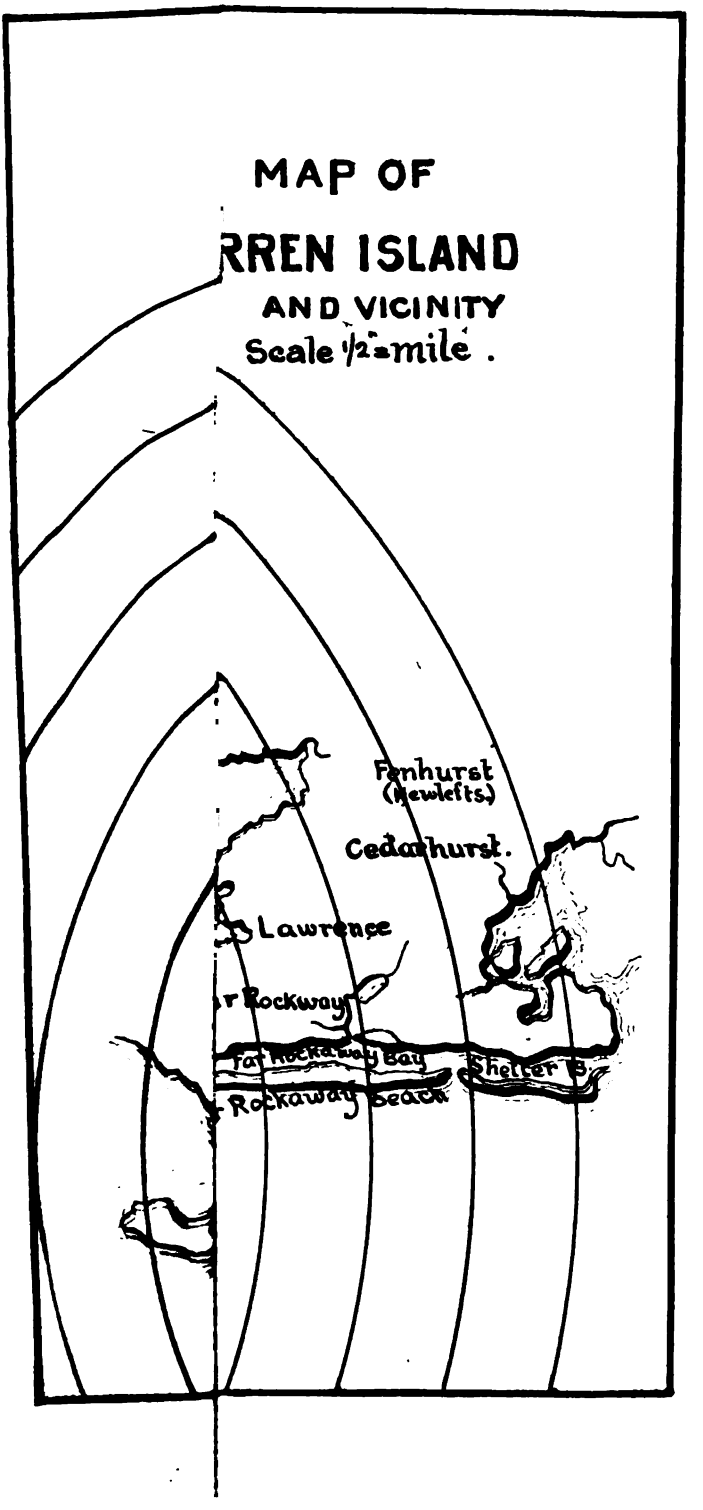
Respectfully submitted,

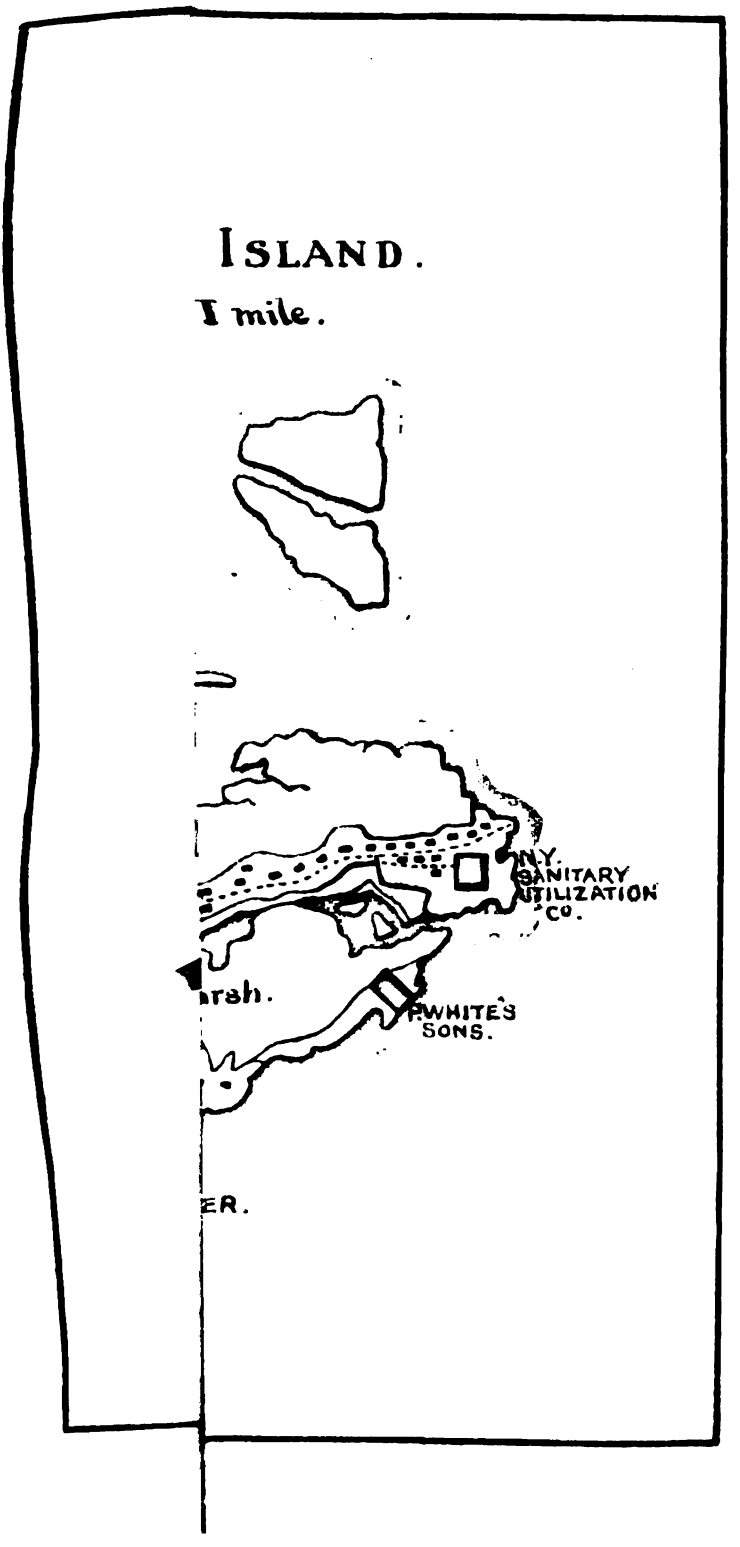
EDWARD W. MARTIN,

Chief inspector


50'
28'
20'
9'

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MAP OF
RREN ISLAND
AND VICINITY
Scale ½=mile .
Fenhurst
(Newletts)
Cedarhurst.
Lawrence
r Rockway
Far Rockaway Bay
Shelter I.
Rockaway Beach


ISLAND.
1 mile.
N.Y.
SANITARY
UTILIZATION
CO.
rsh.
P.WHITE'S
SONS.
ER.

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EASTERN PAVING BRICK COMPANY AT CATSKILL

STATE OF NEW YORK, EXECUTIVE CHAMBER,

ALBANY, *April* 21, 1899

State Board of Health, Capital:

Sirs—I am directed by the Governor to forward the enclosed communication to you with the request that you give immediate attention thereto.

Respectfully,

WM. J. YOUNGS,
Secretary to the Governor

CATSKILL, N. Y., *April* 19, 1899

To the Hon. THEODORE ROOSEVELT, *Governor of the State of New York:*

Dear Sir—It is with some reluctance that I address you upon the following matter, but necessity makes it necessary: A considerable number of us have built homes costing from $3,000 to $4,500 in the village of Catskill. The location was beautiful for situation and was a residence portion of our village for fifty years and more. The shale brick company, hailing from Ohio, came and constructed a brick works which is one of the most infernal nuisances in our land; 'tis a besom of destruction; our trees, shrubbery, grapevines, flowers and about everything we have have been killed by the gas from the 240 chimneys whose tops are located below the floor line of our basements. Our homes as abiding places have been *ruined*, and I have had insult added to injury when protesting to some of the annoyances they have inflicted upon us. We have been trying to get relief, in various ways, but so far have failed. My house is black with soot and smoke from the 240 chimneys belching continuously 24 hours a day from the middle of March until the 1st of December.

We brush the nasty black soot from off of our dining-room dishes and food; our bedding and furniture is soiled, and we have been awakened out of our sleep by the volume of smoke coming in our chamber windows. During the heated term we must have our windows open. At present writing my nostrils smart with pungent smell of the gas, and can feel it in my throat. We occupy our homes, are American citizens and taxpayers, and we should receive some consideration in the matter over against the owners of the brick works, whose homes are all in Ohio. If it were possible I would like you to see the existing circumstances with your own eyes, but if that is impossible you can see a petition, together with some sketches and photos now in possession of the Board of Health at Albany. I enclose some communications which I have had with ex-Governor Black and also the State Board of Health, which will inform you somewhat of the situation. We do not ask anything unreasonable of the brick company and the State Board knows that we do not. They also know our situation and just how we are imposed upon.

I wrote the Board last November asking them as to the results of their *visit* and *hearing* held in August and I have not received any reply from them. I send you this communication with some facts which can be established by many witnesses, believing that you are a man who will listen to our request and give it your personal consideration, and assist us as far as is in your power. I also write you as I did ex-Governor Black, upon the precedents established by ex-Governors Hill and Morton.

Very truly yours,

JOHN L. DRISCOLL.

STATE OF NEW YORK, EXECUTIVE CHAMBER,

ALBANY, *May* 1, 1899

To the State Board of Health:

Complaint having been made of the existence of a public nuisance and menace to the health and comfort of the citizens of Catskill and vicinity in the county of Greene in this state, caused by the manner in which the shale brick works at Catskill are con-

ducted, I therefore in accordance with the provisions of section six of article one of the Public health law hereby direct and require you to make an examination into the alleged nuisances and questions affecting the security of life and health in the locality aforesaid, in order to determine if the same conditions now exist as were found by your investigations to exist in the year 1898 as appears by your report of date November 19, 1898, made to Governor Black; and to report the results thereof to me at your earliest convenience.

[Seal] THEODORE ROOSEVELT

Attest:

WM. J. YOUNGS,

Secretary to the Governor.

ALBANY, *July* 15, 1899

Hon. THEODORE ROOSEVELT, *Governor of the State of New York, Albany, N. Y.:*

Dear Sir—I have the honor to transmit herewith the report of this Board upon its reinvestigation of an alleged nuisance caused by the Eastern paving brick company at Catskill, N. Y.

Very respectfully,

BAXTER T. SMELZER,

Secretary

IN THE MATTER OF THE INVESTIGATION OF THE STATE BOARD OF HEALTH INTO AN ALLEGED NUISANCE CAUSED BY THE EASTERN PAVING BRICK COMPANY AT CATSKILL, N. Y.

Hon. THEODORE ROOSEVELT, *Governor of the State of New York:*

Dear Sir—In pursuance to an order made by you, dated May 1, 1899, directing the State Board of Health to reinvestigate into an alleged nuisance caused by the Eastern paving brick company of Catskill, N. Y., the Board has the honor to report that they met for the purpose of making the investigation directed at the Irving house in the village of Catskill, N. Y., on the 27th

day of May, 1899, and after considering the complaint of the petitioners, revisited the locality and works where said nuisance is alleged to exist and made a personal inspection of the same; and after observing and inquiring into the methods employed in the manufacture of paving brick at such place, your committee notified the local health and village authorities, the complainants, the superintendent of the brick plant and other persons representing the manufacturing establishment, that a formal hearing would be given at which both sides could be represented.

Many lay witnesses, physicians and health officer of the village of Catskill were examined in behalf of the petitioners, and such witnesses and representatives of the establishment as appeared were also examined under oath and their testimony reduced to writing.

The Eastern paving brick company is a corporation incorporated under the laws of West Virginia, having a capital stock of $300,000, engaged in the manufacture of paving bricks at Catskill, N. Y. Its officers are H. P. Ells, president; Jonathan Potter, vice-president, of Cleveland, Ohio, and James F. Hughes, secretary and treasurer. The brick manufacturing establishment complained of was constructed in July, 1894, and was originally known as the "Catskill shale brick and paving company." The company that constructed the plant failed, and last year the plant was leased by the Eastern paving brick company from the Woodland avenue savings and loan company of Cleveland, who were the trustees of the bonds of the Catskill shale brick and paving company. Since the examination ordered by Governor Black, the Udalia kilns or the brick plant complained of have been purchased by the Eastern paving brick company.

The plant is situated along Catskill creek and between said creek and the main street of said village, which street has the same general direction as the creek; the Udalia kilns have a frontage of about 700 feet along the creek. The main street of the village is much higher than the creek and on a level with the

tops of the chimneys extending from the Udalia brick kilns. There are 10 of these kilns, each having 24 chimneys.

The process of manufacturing is briefly described as follows: The shale is obtained from the kilns some 10 or 12 miles from the village on the line of the Catskill mountain railway and is brought down by cars over the road to the plant and dumped over trestles. The clay is brought from Leeds, some four miles away, in much the same manner. The shale is passed into what are called dry pans, crushed and then taken over belts and passed through screens so that the finer material may fall through. The process of crushing is carried on in a large building, the doors and windows of which are left open, and through these clouds of dust are carried out by the wind through the windows and into the houses of those living in the vicinity of the plant. The ground shale and clay are taken into what is called a pug mill and is there pugged or mixed. Then it is carried on again by an endless belt and passed through another pug mill and from there to the brick machines. It goes into the brick machines in a mass more or less damp, and is passed out under steam through a die the proper size. From the brick machine it is passed over another endless belt and carried into what is called a side cutter, which cuts the bricks into shape. The bricks are then put on a car and taken into the dryers to take out the dampness. They are then placed in kilns fired slowly at first and until the kiln is gotten up to its proper degree of heat and kept at that heat for a certain length of time till the brick shows a decrease in size or what is called shrinkage. The fire is then taken off and the kilns allowed to cool.

The average daily output is about 105,000 bricks, and about tons of coal, mostly soft, are consumed from spring until fall or during the season of manufacture, and whatever gas, smoke and soot are generated in the burning of this coal pass out through the chimneys and smokestacks, and the soot, smoke and coal gas given off are swept by gusts of air over the lawns, through the windows and into the homes of many people living on the north and east of the works, and affecting a district in which 500 to 1000 people reside.

From the investigation made by your committee and the testimony taken which is herewith submitted and made a part of this report, and the investigation ordered by Governor Black, we make the following findings of fact:

First—That by the operation of said machinery great and unnecessary noise is made and created and that the Udalia kilns when in operation constantly give out great quantities of heavy black smoke, coal gas, noisome and foul smells and odors, which said smoke, gas and odors, owing to the location, construction and methods of operating said kilns, are carried directly into the houses and living and sleeping rooms of a large number of people residing in said village, both day and night, making it necessary for them to keep both doors and windows closed and causing much sickness and ill health and constituting a nuisance injurious to life and health.

Second—That the manufacture of paving brick by said corporation at the Udalia kilns as at present operated and constructed constitutes a nuisance injurious not alone to the enjoyment of the property rights of the people, but to the public health as well.

The State Board of Health would therefore recommend that the operation of the Udalia kilns as at present operated be declared a nuisance, and that the same be abated on or before August 1, 1899.

I hereby certify that at a meeting of the State Board of Health of New York, held June 30, 1899, at the Hotel Normandie, New York city, the within report of the committee appointed to investigate into an alleged nuisance caused by the Eastern paving brick company at Catskill, N. Y., was received and made the report of the Board to the Governor.

BAXTER T. SMELZER,
Secretary and executive officer

STATE OF NEW YORK, EXECUTIVE CHAMBER

In the matter of the investigation of the State Board of Health into an alleged nuisance caused by the Eastern paving brick company, at Catskill, N. Y.

An order having been made by me on May 1, 1899, directing the State Board of Health to investigate into an alleged nuisance caused by the Eastern paving brick company of Catskill, N. Y., and the said State Board of Health having returned to me their report of such reinvestigation and examination, wherein they find the following facts:

First—That by the operation of the machinery used by said company great and unnecessary noise is made and created in the plant of said Eastern paving brick company, situated along Catskill creek, and between said creek and the Main street of the village of Catskill, N. Y., and that the Udalia kilns, having a frontage of about 700 feet along said creek, when in operation, constantly give out great quantities of heavy black smoke, coal gas, noisome and foul smells and odors, which said smoke, gas and odors, owing to the location, construction and methods of operating said kilns, are carried directly into the houses and living and sleeping rooms of a large number of people residing in said village, both day and night, making it necessary for them to keep both doors and windows closed, and causing much sickness and ill health, and constituting a nuisance injurious to life and health.

Second—That the manufacture of paving brick by said corporation at the Udalia kilns, as at present operated and constructed, constitutes a nuisance, injurious not only to the property rights of the people, but to the public health as well, and recommending that the operation of the Udalia kilns, as at present operated, be declared a nuisance, and that the same be abated, on or before August 1, 1899.

Now, therefore, on reading the said report, it is hereby ordered that the report of the State Board of Health of such reinvestigation and examination be, and the same hereby is, ap-

proved; and it is hereby further ordered, and I do hereby, pursuant to section 6 of the Public health law, chapter 661 of the laws of 1893, declare that the operation of the said Udalia kilns, as at present operated and constructed, as certified in said report, is a public nuisance.

And I do further order the said Eastern paving brick company to abate said nuisance on or before August 15, 1899.

Given under my hand and the privy seal of the state at the Capitol in the city of Albany this twenty-ninth day of July, in the year of our Lord one thousand eight hundred and ninety-nine.

[Seal] THEODORE ROOSEVELT

By the Governor:

WILLIAM J. YOUNGS,

Secretary to the Governor

STATE OF NEW YORK, EXECUTIVE CHAMBER

Whereas, an order was issued by me of date July 29, 1899, based upon the report of the State Board of Health, directing that the Eastern paving brick company, at Catskill, abate certain nuisances reported by said State Board of Health to exist in or near the village of Catskill, and

Whereas, the said Eastern paving brick company having made the request that such order be temporarily suspended, and

Whereas, a petition numerously signed by officials of the county of Greene and prominent citizens of the village of Catskill requesting that such petition be granted, has been presented to me,

Now, therefore, it is hereby ordered, and I do direct the sheriff of the county of Greene to suspend the enforcement of my said order of date July 29 above referred to for the time being, and direct that the said Eastern paving brick company be allowed until the 15th day of November, 1899, within which to abate the nuisances above referred to.

Given under my hand and the privy seal of the state at the Capitol in the city of Albany this sixteenth day of August, in the year of our Lord one thousand eight hundred and ninety-nine.

[Seal] THEODORE ROOSEVELT

By the Governor:

WILLIAM J. YOUNGS,

Secretary to the Governor

Special Investigations and Reports

BRONXVILLE, N. Y.

BRONXVILLE, *May* 7, 1899

Gentlemen—I beg to call your honorable Board's attention to a state of nuisance in this village of Bronxville, Westchester county, caused by the sewage of Lawrence park running into a small brook which has stopped running. The water has stagnated to such a state that an offensive odor arises. The health board has been notified, also the health officer, but the sewage still lies in this brook, which is a danger to public health. Trusting your honorable Board will give this matter their full attention, I remain,

Respectfully yours,

D. McCURDY

ALBANY, *May* 9, 1899

D. McCURDY, *Bronxville, N. Y.:*

Dear Sir—I am in receipt of your communication of the 7th instant complaining of an alleged nuisance in your village caused by the unsanitary condition of a brook into which the sewage of Lawrence park is discharged.

In reply you are informed that a copy of your communication has been this day sent to W. D. Granger, M. D., the health officer of your village, with instructions to investigate the conditions as stated by you and to report upon the same to this department.

Very respectfully,

BAXTER T. SMELZER,

Secretary

ALBANY, *May* 9, 1899

W. D. GRANGER, M. D., *Health officer, Bronxville, N. Y.:*

Dear Sir—I send you herewith enclosed copy of a communication received from D. McCurdy of your village in which he complains of an alleged nuisance caused by the unsanitary con-

dition of a brook into which the sewage of Lawrence park is discharged.

You are hereby instructed to investigate the conditions as stated by Mr. McCurdy and to report upon the same to this department.

Very respectfully,
BAXTER T. SMELZER,
Secretary

BRONXVILLE, N. Y., *May* 15, 1899

BAXTER T. SMELZER, M. D., *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—In reply to yours of 9th instant, inquiring in regard to sewage of Lawrence Park of this village, I would say that the question of a proper disposal of this sewage has been a matter that has received the careful consideration of the local board of health. They have secured the services of a competent sanitary engineer, who has suggested plans for the proper disposal of the sewage, with estimates of cost. This report has been given to the proprietor of Lawrence park, and his attention to the faulty sewage of his park has been repeatedly presented.

On November 2, 1898, I called his attention in an official letter to complaints received by the board of health of the nuisance on his property, and also to a letter on the subject received from the State Board of Health. I called his attention to the fact that complaints had been made owing to the odors arising from his park. Doors, windows, and houses had been kept closed both night and day during the heat of the summer months; that in these houses lived aged people, young people and invalids. I called his attention in detail to what I believed to be the faulty sanitary conditions of the park; I said in this letter that I fully believed if sanitary matters were to be violated in the future as in the past, life by another summer would be almost unbearable in that portion of our village.

I told him that while at first I had thought the odors largely due to the want of care of the swill, rather than to the sewage, I

was now satisfied after careful consideration and examination that the sewage was equally to blame. Summing all up, I closed my letter by saying: "Now all this, as I understand it, is a nuisance, one you are responsible for, one for you to correct. I ask you to submit some plan to abate this nuisance; I mean a comprehensive one. I believe no one but a skillful sanitary engineer can make such a plan. Doing this and putting it into operation will, in my opinion, be doing no less than your duty.

"It will not take long to outline a plan, and not much longer to perfect it in detail. If nothing is done I shall advise the board to secure legal advice and if possible abate any nuisance that is found."

Mr. Lawrence during the winter has presented plans from an engineer for the care of his sewage; he also under certain conditions offered $5,000 to the village as a contribution, as and above his taxes for the sewage of Lawrence park and the thickly settled portions of the village. This last proposition was rejected by the taxpayers and consequently by the village board.

The buildings of Lawrence park consist of a dozen or more dwellings, a hotel for over 100 guests, and situated up a rocky elevation; to the south and east of the park property lies a meadow. This meadow was formerly drained by a stream now called the "old ditch," as distinguished from the new, or commissioner's ditch. This old stream ran under the Pondfield road, discharged its contents on neighboring property and thence into the Bronx river. The commissioner's ditch is on the farther side of the meadow from the old ditch, and the whole meadow was laid with tiles to drain it. The old ditch is stopped up where it came to Pondfield road.

During October, November and December, 1898, Lawrence park used about 20,000 gallons of water daily; it is fair to assume that most of this water became a part of the sewage. This sewage was received into three cesspools on the side of the hill, a short distance from and a little above the level of the meadow and near the old drain. These cesspools were holes dug into the ground, boarded on the sides, covered with boards, manure and

earth, and they were all within such a distance from dwellings as to give forth perceptible odors. They were constantly overflowing. No. 1 nearest to Pondfield road, was carried by an eight-inch pipe to commissioner's drain, becoming at that point a part of an open drain intended for pure water, and was discharged by this drain into the Bronx.

During last winter this 8-inch drain was probably stopped up in some way, consequently in March last I found the overflow of this cesspool coming out of a 6-inch vent hole into the old ditch, which you will remember has no outlet. I found cesspool No. 2 was overflowing by a constant rapidly running stream directly into the old ditch, and the cesspool No. 3 was overflowing upon the surface of the meadow.

The local board of health thereupon condemned as nuisances the emptying of the sewage in the commissioner's ditch, the overflow of the sewage into the old ditch, and each and every one of the cesspools, and also condemned the old ditch itself, and ordered all to be abated. Before the orders were served, Mr. Lawrence had ceased the flow of sewage into the commissioner's ditch and had abandoned cesspools No. 1 and No. 2, but No. 3 still discharged its contents as stated. Notice was therefore served upon him to abate the nuisance of overflow of sewage in cesspool No. 3, which has been done, though I fear it is but a temporary expedient; also to abate the nuisance caused by the accumulation of overflow of the sewage of these cesspools in the old ditch, and to stop discharging sewage into said ditch. The water in the old ditch and the soil of the ditch and the surrounding land must, in my opinion, be saturated with sewage, and so far as I know up to the present time nothing has been directly done to place this ditch in a sanitary condition.

I shall, if the nuisance is not abated, at the proper time serve a second notice upon Mr. Lawrence, requiring him to appear before the board and show cause why a nuisance does not exist in this old drain, and why it should not be abated.

In place of cesspool No. 1, Mr. Lawrence built two new cesspools, of the same character as the old one and near to it. Out

of these cesspools he has built a trench about a couple of hundred feet long and at right angles with this trench a half dozen shorter trenches and put into them garden tiles; the end of these trenches are about a dozen feet from the old ditch and but little above its level. About three weeks ago while they were under construction I notified Mr. Lawrence that in my opinion they could not take care of the sewage delivered to them, and that they would overflow into the old drain. His answer was that he would fix it so that I could bring a tumbler and drink the pure water that would flow from these trenches. On Friday, May 12, in two places rapid streams of sewage water were flowing into the old drain. This cesspool takes, as I understand it, sewage from the hotel; he is at the present time erecting an addition to this hotel, and I am informed there will be 27 bath-tubs put into this addition. When this hotel is full with guests and servants and the houses of the park are filled for the summer months, it is apparent that a much larger quantity of water will be used daily than was used last autumn. I think the amount will be nearly 30,000 gallons a day.

Yesterday, May 14, I found that no sewage was running into the old ditch because a new ditch has been built into which the sewage from these ditches with garden tiles was emptying. He had carried this ditch across a filled place in the old ditch and onto the meadow, where it was emptying its water. This morning I see that he is extending this ditch into the centre of the meadow. What his intentions are I do not know. He has asked the board of health to open the old drain under the Pondfield road; as a matter of law our attorney has informed us that we cannot do this. The board to-night will consider what answer is to be given Mr. Lawrence. The proposition, as I understand it, is to abandon all effort to drain the meadow through the commissioner's ditch, which cost $35,000 to construct, and was for the purpose of draining the meadow. He thinks that if he can have the old ditch open under the Pondfield road he can drain the meadow reasonably dry, and that the soil of the meadow underneath the surface being, as he says, of fine sand, it will receive

his sewage and purify it so that it can be drunk from a tumbler and that it will find its way into the old ditch under the Pondfield road and into the Bronx River.

I do not consider Mr. Lawrence a competent sanitary engineer, able to devise plans to care properly for sewerage problems of this magnitude. I have never changed my opinion expressed in my letter of last November, that his sewage could not be properly cared for except it was done in accordance with plans submitted by a sanitary engineer.

Three weeks ago he could hardly admit a doubt that the plan which he was then constructing, which I have described in this letter, would fail to work, but this short trial has proved the correctness of my opinion. I do not know exactly what Mr. Lawrence intends to do, but I fail to understand how he can care for this large volume of sewage in his meadow where he now appears to be taking it. Our sanitary engineer proposed a plan for taking care of this sewage upon his meadow. Not only would it effect this purpose, but he also maintained he could make the meadow beautiful to the eye, but this plan Mr. Lawrence has not carried out.

I shall advise the local board to order the treatment of the old ditch with lime and copperas, and the filling in of said ditch with fresh earth, preferably with gravel.

I do not know of any other way that it could be rendered sanitary, so as to be free from noxious odors during the coming summer. If the work that Mr. Lawrence is now doing in carrying his sewage off into the meadow does not properly take care of the sewage, and he refuses to properly care for it, I shall consider it my duty before that meadow becomes saturated with the sewage as the soil of the old ditch has been, to advise the board to secure legal counsel and to consider the advisability of ordering the hotel in Lawrence park to be closed. If the private houses in the park shall appear after that to discharge any quantity of sewage that cannot be properly cared for by the system in vogue, to require each and every one of those houses to maintain upon its own lot a house cesspool. I should pursue this

radical course for the reason only that Mr. Lawrence has been repeatedly warned, argued with and pleaded with, and because he has been informed by the board of health that he could upon his own ground properly care for his sewage, and he has been told the same thing by the sanitary engineer we employed.

Whether in doing the work that I have described he is following the advice of a sanitary engineer I do not know. I have seen Dr. Lewis, president of your Board, and I have expressed to him the wish that your Board could see your way to send an expert to examine Bronxville, to assist and advise the local board. I would be gratified if you would let me know what the expense to the village of Bronxville would be for the services of an expert inspector. I feel the need of such advice. I am anxious and so is the local board to have this nuisance abated; we are equally anxious to make no mistakes.

Any further information that you would desire on this matter, I would be pleased to furnish you.

Yours very truly,
WILLIAM D. GRANGER,
Health officer, village of Bronxville, N. Y.

P. S.—I have heard that Mr. Lawrence has asked for a representative of your Board to be sent here. If you do so for him I would consider it a favor if you'd let me know day and hour he would be here.

Yours, etc.,
WM. D. GRANGER

ALBANY, *May* 17, 1899

WILLIAM D. GRANGER, M. D., *Health officer, Bronxville, N. Y.:*

Dear Sir—We are in receipt of your communication of the 15th instant in explanation of the inadequate system of sewage disposal in connection with Lawrence park.

In reply you are referred to a copy of a communication on the subject sent to Mr. Lawrence this day.

If Mr. Lawrence decides to accept our proposition to send one of our sanitary engineers to Bronxville, you will be notified of such fact.

In the event of a non-acceptance by Mr. Lawrence, it would be well for your board to have a sanitary engineer from this Board to make an investigation and advise with you as to the course necessary to be taken to cause the abatement of such nuisances as may be found to exist at Lawrence park.

Very respectfully,

T. A. STUART,
Assistant secretary

ALBANY, *May* 17, 1899

W. V. LAWRENCE, *Tower Building, Fifth avenue and Forty-fifth street, New York City, N. Y.:*

Dear Sir—We are in receipt of a report from the health officer of Bronxville, Dr. William D. Granger in the matter of nuisances caused by the present method for disposal of sewage from Lawrence park, and from his statement of the facts in the case it is recommended that you secure the services of a competent sanitary engineer to advise as to the best methods to adopt for a sanitary disposal of such sewage from your property.

If desired, one of the consulting engineers of this Board will be sent to Bronxville at your expense to make an examination as to existing conditions, and to recommend a plan for remedying such as in his opinion require such action.

Very respectfully,

T. A. STUART,
Assistant secretary

SCHENECTADY, N. Y., *June* 28, 1899.

BAXTER T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—Agreeable to your telegraphic instructions of May 25 to investigate a complaint from Dr. Wm. D. Granger, health officer of the village of Bronxville, N. Y., concerning the disposal of sewage from Lawrence park in the village of Bronxville, I beg to submit the following report: The complaint on which this

investigation was ordered is dated May 15, 1899, and is hereto appended. My examination of the local conditions was made in company with you and Dr. Granger and W. V. Lawrence, the proprietor of Lawrence park, and was confined to an ocular examination, as no surveys nor levels were available within the time assigned to the inspection.

In extension of the description given in Dr. Granger's complaint, I will say that it is true that there have existed nuisances arising from the discharge of sewage from the cesspools, though at the particular time of the inspection no overflow was occurring as a new irrigating ditch from the last pool had just been opened and was taking care of the overflow from the cesspool at that time, though I am far from convinced that the remedy will be permanent. Mr. Lawrence contends that if the old ditch referred to had not been closed by the village or the town, that he would have been able to maintain his disposal of sewage without creating a nuisance; without going into the merits of his proposed means of doing this, it would appear that Mr. Lawrence should be allowed to use the old ditch through his land if he desires to do so as it is located along the natural drainage axis of the territory and constituted the natural means of draining the land, even though it had been straightened in alignment and deepened years ago. Even now since it has been closed it collects a large amount of water which is prevented from passing off along its original channel by the action of the authorities in closing the ditch at a point where it passes through a culvert.

Mr. Lawrence further contends that the village should be compelled to put in sewage disposal works and has made the proposition, referred to in the complaint, to aid in the cost of the same if so constructed.

The village has no sewer system, and the contention therefore involves the question of a sewer system as well as disposal works. I looked into this matter somewhat but found that while a sewer system would be desirable, and in time will be absolutely necessary, at the present time the need for it is not pressing to that extent that would warrant stringent measures to force the

village to construct such a system. Much less would there be warrant for such measures in support of a disposal works. The water supply is largely from the New Rochelle water company mains, though quite a large number of houses are yet dependent on wells. The sewage of the village is disposed of in cesspools and privy-vaults, the fairly satisfactory condition of which is due to the porous condition of the soil. It is a little surprising that instances of well-water pollution from vaults and cesspools have not occurred, but the health officer states that such is the case and that he has never known a case of illness or impairment of health due to this cause. My examination of the matter leads me to the following conclusions and recommendations:

(1) That the village authorities be advised to take into consideration the early provision of sewerage for the entire village.

(2) That the village authorities be directed to re-open the old ditch from the upper side of the culvert on Pondfield road to the Bronx river, to its proper and original cross-section and depth.

(3) That the proprietors of Lawrence park be required to maintain its disposal system and ditches in a sanitary condition, by whatever method it proposes to dispose of its sewage.

I am, dear sir, very truly yours,

OLIN H. LANDRETH,
Consulting engineer

ALBANY, *July* 19, 1899

To the President of the Board of Trustees, Village of Bronxville, Bronxville, N. Y.:

Dear Sir—In compliannce with a resolution adopted at a meeting of this Board, held June 30, 1899, your attention is called to the enclosed copy of a report made by Dr. W. D. Granger upon his investigation of a complaint concerning certain alleged unsanitary conditions existing in your village, caused by sewage from Lawrence park, also a copy of a report on the same subject made by Prof. Olin H. Landreth, one of the consulting engineers of this Board.

As the report of Professor Landreth was accepted and the recommendations contained therein were approved by the State Board of Health at the meeting of June 30, 1899, it is directed that the trustees of your village cause to be reopened the old ditch from the upper side of the culvert on Pondfield road to the Bronx river, to its proper and original cross-section and depth.

It is also advised that the consideration of provision for a system of sewers for the entire village of Bronxville receive the early attention of your Board.

Very respectfully,
BAXTER T. SMELZER,
Secretary

ALBANY, *July* 19, 1899

WILLIAM D. GRANGER, M. D., *Health officer, Bronxville, N. Y.:*

Dear Sir—I enclose herewith a copy of the report made by Prof. Olin H. Landreth upon his investigation of a complaint made concerning the present method for the disposal of sewage from Lawrence park, the report having been made the report of this Board at a meeting held June 30, 1899.

A copy of your report dated May 15, together with a copy of Professor Landreth's report, have been transmitted to the trustees of the village of Bronxville directing them to comply with recommendation No. 2 in Professor Landreth's report, and advising them to take early steps looking to the construction of a complete sewer system for their village.

It is advised that your board call the attention of Mr. Lawrence to the third recommendation contained in the report of Professor Landreth, and see that the same is complied with.

Very respectfully,
BAXTER T. SMELZER,
Secretary

VILLAGE OF SOLVAY

SOLVAY, N. Y., *June* 20, 1899

State Engineer Canals, Albany, N. Y.:

Dear Sir—I have been instructed by the local board of health to notify you that a nuisance exists on property owned by the state of New York as below described. Please take prompt and effective measures to have the nuisance abated, as it is considered detrimental to the public health, and of such a character as is liable to cause disease.

Stagnant water and filth in old canal north of Bridge street needs cleaning out.

Yours truly,

A. E. WATERFIELD,

Clerk

SYRACUSE, N. Y., *June* 28, 1899

Hon. EDWARD A. BOND, *State Engineer and Surveyor, Albany, N. Y.:*

Dear Sir—Replying to your letter of the 21st instant, I am very familiar with the location and cause of the complaint referred to by the board of health of the village of Solvay. I send you herewith a sketch showing location of ditch with reference to the canal. The trouble arises from water closets and slop drainage from several houses on the bank adjoining the ditch, and from a sewer near the road discharging filth into the open ditch. After the ditch was excavated the village authortities put a 2 by 2½-foot pipe culvert in the ditch about nine inches too high and built a road across as shown on map; this culvert creates a dam and consequently stagnant water between that point and the road. Opposite the several houses the bottom of the ditch is below proper grade, which should be filled, requiring perhaps 30 or 40 cubic yards, but if the closets, sewage

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TILDEN FOUNDATIONS.

and garbage were cut off and the culvert lowered, there would be no nuisance at that point, and it is not possible to keep the ditch in proper condition as long as the present surroundings exist, and the board of health should begin at the source of the trouble if they expect abatement.

Very respectfully yours,
W. H. H. GERE,
Division engineer

ALBANY, *July* 1, 1899

A. E. WATERFIELD, *Clerk Board of Health, Solvay, N. Y.:*

Dear Sir—We are in receipt from the state engineer of your communication to him under date of June 20, 1899, calling his attention to an alleged nuisance in the village of Solvay, caused by stagnant water and filth in the old canal north of Bridge street.

In reply you are referred to the enclosed copy of a report made by Division engineer W. H. H. Gere upon his investigation of the complaint.

From the nature of the report it would seem that the village and not the canal authorities are responsible for the existing conditions which they should take steps to remedy at once.

Very respectfully,
T. A. STUART,
Assistant secretary

RIO GRANDE RIVER, GOSHEN, N. Y.

GOSHEN, *May* 29, 1899

To the State Board of Health:

We, the undersigned, freeholders and property owners, residing in the town of Goshen, in the county of Orange, beg to

GOSHEN, *September* 18, 1899

To the State Board of Health:

Gentlemen—Relative to a conversation had with one of your honorable Board, Mr. Stuart, the board of trustees of the village of Goshen would respectfully request that you send the engineer of the State Board of Health to this village to lay out a system of sewerage according to the best methods now in use. The cost of the engineer for his services was not to exceed $50.

We are respectfully,
BOARD OF TRUSTEES, VILLAGE OF GOSHEN,
By H. J. YERG, *Clerk*

ALBANY, *September* 21, 1899

H. J. YERG, *Clerk Board of Trustees, Goshen, N. Y.:*

Dear Sir—We are in receipt of your communication of the 18th instant requesting that an engineer be sent to your village for the purpose of laying out a system of sewers, the cost for services and expenses not to exceed $50.

In a conversation had with your president Mr. Hook, on the 4th instant, I stated that an engineer could be sent for not to exceed the amount named, for the purpose of investigating and advising your board as to the best method to adopt in the matter of a sewer system.

Of course you understand that the amount named ($50) does not include the preparation of plans, which you could arrange for with the engineer, if you wished him to do that work.

Professor Landreth, one of the consulting engineers of this Board will be directed to visit Goshen at an early date in compliance with your request.

Very respectfully,
T. A. STUART,
Assistant secretary

ALBANY, *September* 21, 1899

Prof. OLIN H. LANDRETH, *Consulting Engineer, Schenectady, N. Y.:*

Dear Sir—The trustees of the village of Goshen, Orange county, desire your services for the purpose of advising them in

the matter of a sewer system for their village, and in a conversation with the president, R. B. Hock, I told him that I thought $50 would cover your bill for services and expenses, which they are willing to pay.

It is requested that you visit Goshen for the purpose of investigating as to the need of a system of sewers, and advising as to the best system.

There are a number of private sewers in the village which discharge into what is known as the Rio Grande and some complaints have been received concerning the matter.

I was in the village a couple of weeks ago and at that time advised that the authorities should abandon the use of the stream for the discharge of sewage therein and suggested the early construction of a sewer system.

Please notify H. J. Yerg, clerk board of trustees, Goshen, N. Y., when it will be convenient for you to make the desired examination.

Very respectfully,

T. A STUART,

Assistant secretary

ALBANY, *October* 30, 1899.

Prof. OLIN H. LANDRETH, *Consulting Engineer, Schenectady, N. Y.:*

Dear Sir—When you visit Goshen in compliance with the request of the village authorities to confer with them as to a sewer system, it is advised that you investigate the complaint made by Fernando Wood and others which is enclosed herewith, and concerns the present method of sewage disposal.

Fernando Wood and C. S. Wells, both signers of the petition and living a short distance outside of the village, desire to be notified when you visit Goshen, their post-office address being Goshen, N. Y.

Very respectfully,

T. A. STUART,

Assistant secretary

SCHENECTADY, N. Y., *December* 31, 1899

BAXTER T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—Agreeable to instructions from your office dated October 30, I visited the village of Goshen, Orange county, New York, on November 11 for the purpose of investigating an alleged complaint signed by Fernando Wood and eight other landowners residing in the town of Goshen along the course of a small stream called the Rio Grande, a tributary of the Wallkill river, concerning an alleged pollution of the stream in question by sewage discharged from hotels, private residences, the county jail and village lock-up, in the village of Goshen.

On reaching Goshen I examined the stream in question for a distance of two miles from the village in company with Fernando Wood and C. S. Wells, both signers of the complaint, and I visited the village officials and with some of them examined the stream during its course through the village, and examined by myself its course above the village.

The village officials met were R. B. Hock, president; H. J. Yerg, clerk; H. A. Horton and T. D. Schoonmaker, trustees, and John A. Elston, member of the village board of health.

I found the condition of the stream as to pollution to be fully as bad as indicated by the complaint and also from the cause indicated.

Both on the occasion of the visit above mentioned and on a subsequent visit, when I examined the stream more thoroughly by myself, I found the bed and banks of the stream through the lower part of the village and below the village strewn with sewage and garbage and obstructed by stones, brush, old tinware and crockery. In this lower section there also enters the creek the refuse from the gas works and from a large cider mill and vinegar factory, each of which contributes its characteristic pollution, odors and unsightly appearance. In its flow through the center of the village the creek is covered over and inaccessible to ordinary inspection. Above this covered portion, however, the appearance of the stream was much better, though one branch

drains a marshy pool caused apparently by brick-yard excavations in time past and the water from this pool was not in good condition. For about a mile and a quarter below the lower end of the covered portion of the creek the creek has a strong current arising from a good fall; below this it is very sluggish, flowing about flush with the general level of the adjoining fields and spreading over these fields in numerous places, and during ordinary storms inundates these lands throughout a good part of the distance from the place where the sluggish flow begins down to the Wallkill river, a distance of about a mile and a half. An examination of the material forming the bed of this portion of the creek gave unmistakable evidence of comparatively recent filling up. The bed was composed of large amounts of organic materials and the refuse from the village, imbedded in a deposit of slimy ooze from the clay loam of the adjoining meadows. Every stirring of this material of the bed gave up large volumes of very disagreeable gas, which I was told escaped naturally during hot weather to the detriment of people living along the stream. Two of the residents informed me that the filling up of the stream had been a recent matter; that up to 10 or 15 years ago the stream, although never a rapid one through these meadow lands, had well defined banks which it only overflowed at freshet time, and further, that the character of the vegetation on these meadow or bottom lands had undergone a corresponding change, being now largely marsh grass and in places rushes and flags in place of the former meadow grass.

Two of the residents living on the high lands immediately adjoining these bottom lands stated to me that the region had of late years become malarial, a condition unknown in this locality up to a few years ago. These statements were verified by the engineer at the Erie railroad water tower pumping station, which is in the midst of the marshy lands formed by the filling up of the creek bed. He states that he has contracted malaria during his occupation here during the past two or three years, a disease he has never before suffered from. I omitted to state in describing the sources of pollution in the village that I noticed a large

number of privies placed immediately on the banks of the stream, the droppings from which passed either directly into the stream or onto the steep bank of the same.

The following information is pertinent as bearing on the necessity and the feasibility of introducing a sewer system for the village:

Population of village	3200
Miles of street within village limits	15
Number of connections to public water supply	350
Estimated population using public water	1800
Appraised valuation of the village for 1899	$1,618,700
Bonded debt of village	44,000

In 1889 Prof. Chas. C. Brown, then consulting engineer of the State Board of Health, was engaged by the village authorities of Goshen to examine into and to report on the matter of providing a system of sewerage for the village. His report appears in full in the 10th annual report of the State Board for 1890, the report being dated May 22, 1889. This report not only strongly recommended the introduction of a system of sewers, but contains a pretty full outline plan for not only a system of sewers but for a disposal system. Later detailed specifications for a complete system were prepared for the village by Professor Brown, and the work preliminary to introduction was carried to the point of receiving proposals for the construction of the system, when, owing to a strong opposition on the part of certain residents, the matter was obstructed and ultimately dropped, and nothing has since been done to abate the undesirable conditions, which, in fact, have grown worse than at the date of his report. The village authorities are now having the matter looked into again particularly, to ascertain what improvements if any have been developed in the matter of sewage disposal since the date of Professor Brown's report, as no relief from the unsanitary conditions along the creek below the village would follow the introduction of a complete system of street sewers if it did not also comprise a system of disposal.

The parties filing the complaint above referred to were advised not to resort to litigation to secure the abatement of the pollution of the stream by injunction, but rather to aid in securing the action of the village needed to adopt a sewerage system. The village authorities, or at least some of them, fully appreciate the liability the village is apparently under in thus polluting the stream, as well as the necessity of improving the unsanitary conditions within the village limits, but will need all the support your Board can render them in effecting the needed action, as the matter of expense is an obstacle which will be urged by a certain portion of the taxpayers and property owners.

To recapitulate: (1) There is no question but that the Rio Grande is seriously polluted with sewage from the village of Goshen. (2) This pollution not only impairs the sanitary condition of the village itself to a very serious degree, but it produces extremely unsanitary conditions and constitutes an injury to the rights of riparian owners below the village. (3) The construction of a proper sewer system, with disposal works, is not only perfectly feasible constructively, but there would seem, from an examination of the village statistics of population, valuation and present indebtedness, to be no good reason why the village should not at once undertake and carry out this much needed sanitary improvement.

I am, dear sir, very truly yours,

OLIN H. LANDRETH,
Consulting engineer

TYPHOID FEVER AT SILVER SPRINGS

SILVER SPRINGS, N. Y., *September* 8, 1899

State Board of Health, Albany, N. Y.:

Dear Sirs—The population of our village is about 1800.

Five years ago we had an epidemic of typhoid fever, *i. e.*, 57 cases.

Two weeks ago another epidemic started, and at present we have 10 cases in our corporation.

We, the newly appointed board of health, pray for your instruction regarding the abatement of our condition.

We find 22 suspicious wells.

Where can we get the water analyzed?

What is the usual expense for analysis?

Our soil is loose gravel, and water can be obtained from 18 to 24 feet in depth.

We also have a gravity water system from springs two miles west of our village. This system has a 1400-barrel open tank, which is filled by pressure on the mains, thereby causing the tank to be filled and emptied several times a month, and the surface of interior dried alternately. The bottom of tank is covered to a depth of two or three inches with aquatic and vegetable débris.

Families using this as well as the well-water are suffering from typhoid.

Please give us full instructions and manner of procedure.

Very truly,
J. O. RANDALL, M. D.,
Health physician

ALBANY, *September* 12, 1899

J. O. RANDALL, M. D., *Health officer, Silver Springs, N. Y.:*

Dear Sir—I am in receipt of your communication of the 8th instant in which you refer to an epidemic of typhoid fever in your village, and ask that samples of water be analyzed for you to if possible locate the cause for the epidemic.

In reply you are requested to send one sample of water taken from the public water supply, with either two or three samples from wells most suspected as being polluted.

It is advised that you also furnish this Board with a sketch of the infected district, locating the privy vaults, showing their proximity to wells. It would also be well for you to examine

the watershed of the water supply of your village, to determine as to whether or not the water is being polluted by reason of the location of privy vaults on such watershed, or the deposit of human excreta on the ground whence it can be washed into the streams furnishing the public water supply.

In sending the samples of water follow the enclosed printed instructions, and notify this office when the samples are sent, that Professor Tucker may be instructed to proceed with their examination.

Very respectfully,

BAXTER T. SMELZER,
Secretary

SILVER SPRINGS, N. Y., *October* 5, 1899

BAXTER T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—Your communication of the 3d duly received, for which we are very grateful. In regard to the subject of the 15 cases of typhoid fever during the present epidemic, one man resided here 18 months; seven children, nine to 16 years of age, residents here from eight to 12 years; two men, foreign born, resided here eight years; one lady, born in the corporation; one man, born in Canada, resided here eight months; two ladies and one man have been residents here for over four years, and 12 of the 15 were born in western New York. The Catholic cemetery at the west of the village has been a great source for remarks by our people, thinking perhaps that the contamination from it was the cause of the cases only a few rods east of it. We earnestly request that you allow one more sample of water for analysis to be taken from a driven well east of the cemetery and in the locality of present cases. For the past 10 years we have disinfected our typhoid excreta by the use of bichloride of mercury, lime and chemically pure sulphuric acid. A few families might have been careless, but we did the best we could. Again thanking you, gentlemen, for the interest you have taken in our present trouble, and the

manner for abating the same, so well explained by you, we remain sirs,

Very truly yours,
J. O. RANDALL, M. D.,
Health officer

ALBANY, *October* 7, 1899

J. O. RANDALL, M. D., *Health officer, Silver Springs, N. Y.:*

Dear Sir—We are in receipt of your communication of the 5th instant, giving further facts in connection with cases of typhoid fever, and note your request to have an analysis made of one more sample of water.

In reply you are directed to send the sample of water to Professor Tucker in compliance with instructions previously sent to you, notifying this office when the sample is sent in order that Professor Tucker may be notified to examine same.

Very respectfully,
T. A. STUART,
Assistant secretary

SILVER SPRINGS, N. Y., *September* 16, 1899

To the Honorable State Board of Health, Albany, N. Y.:

Gentlemen—Referring to the present epidemic of typhoid fever in the above village, there are at present 10 cases of typhoid fever, situated as per lettering on the map forwarded to you. I would say that I neglected to place the points of the compass on said map, but Main street runs north and south. The soil is gravel, the percolation through it and also the watershed is from west to east to the village, thence south through and from said village. The village is situated on a level plateau some lower than the surrounding country, but not on low or swampy lands. The accumulating tank for the water supply (the water company) is situated about two miles west of the village. The storage tank is of wood, open on top, situated inside the corporation, 85 feet higher than Main street. It is not necessary to use a pump at pump station, except in extreme dry weather; then the

accumulating pond (in natural water course) is drawn off, refilled, then pumped into the mains. All suspicious wells on the map are situated within from 30 to 35 feet from the residence privy, and could easily be contaminated. In digging these wells the soil was gravel and boulder. The only water from any swamp that could possibly get into the natural watercourse would be in the spring or fall, when there has been heavy rainfalls, or an accumulation of snow that is melting.

The Catholic cemetery (the largest on the map) is in the same soil as the village, situated on the west side, from 60 to 70 feet above the same, and only about 30 rods from two of the present cases, said families using water from driven wells. The old cemetery on Main street is in the same kind of soil, and less than 400 feet from a locality where there has been over 50 cases of typhoid fever during the past five years. This cemetery is about on a level with the village. The gallon bottles used for the samples of water were first washed in muriatic acid, then in aqua ammonia, and then rinsed thoroughly in boiling water; they were also rinsed thoroughly before filling at the suspected places.

Trusting this will be satisfactory, I remain, sirs, very truly yours,

J. O. RANDALL, M. D.,
Health officer Silver Springs, N. Y.
JOHN H. DUNCAN,
President village
GEO. E. PIPER,
Clerk board of health

ALBANY, *September* 27, 1899

J. O. RANDALL, M. D., *Health officer, Silver Springs, N. Y.:*

Dear Sir—I am in receipt of your communication of the 16th instant in explanation of the map sent by you showing the location, surroundings etc., of house in which cases of typhoid fever exist in your village.

Professor Tucker has been directed to analyze the six samples of water taken from the public water supply and certain private

wells in the village of Silver Springs, and when his report is received a copy will be sent to you with such advice as the result of the examination warrants.

Very respectfully,
BAXTER T. SMELZER,
Secretary

ALBANY, *October* 3, 1899

J. O. RANDALL, M. D., *Health officer, Silver Springs, N. Y.:*

Dear Doctor—With your very satisfactory map of Silver Springs on which are data relating to your typhoid fever, and with the report of the analyst on the samples of water sent, it seems possible to deduce certain practical facts.

Your village is situated on a level area somewhat below the surrounding country, with a well-drained soil of gravel and drift.

Your water supply is partly a public supply usually derived from springs two miles distant flowing by gravity, which in dry spells is supplemented by pumping from a source partly swampy. Also there are village wells, which are of necessity used in the south part of the village not reached by the water mains.

Your village has been for years past subject to typhoid fever, an unusual prevalence of which occurred in 1894.

Your present recurrence of it began in the south part of the village and succeeding cases extended northward.

The analyses of samples of water show that of the four wells the two most southerly are contaminated, the third is to a degree contaminated, and the fourth, used by the fifth family affected (Surdam), is satisfactory; we note, however, that though separated by a railroad bed it is not more than 300 or 400 feet from a locality where typhoid fever has hertofore existed.

The public water supply derived from springs is good, but the supplementary supply is doubtful.

The history of Silver Springs is quite like that constantly met with in other villages. Every year doubtless you have some cases of typhoid fever and occasionally a year of unusual preva-

lence. The rationale of it is that the soil of the village, and as your map shows, that of the entire village, becomes the depository of typhoid bacilli. How long these germs retain vitality in the soil is not known, but it is for an indefinitely lengthy period. Conditions bring them to activity, and conditions arise which favor their reaching the subject of infection. By past experience this year is a favorable one for typhoid fever—a dry summer, with occasional severe rains. The bacilli perhaps germinate more readily as the level of ground water is lowered and the rains carry them more readily into the wells. The conditions for the latter are greatly favored by the porous nature of the soil of Silver Springs.

The inference is that wells in such a soil and a soil so certain to be implanted with typhoid bacilli are not fit for use. Acclimation no doubt protects your people to a degree, and not a few become immune by a previous attack; it would be interesting to know if the subjects of the disease are recent residents or otherwise open to taking the disease.

The fact that certain persons in Silver Springs who do not habitually drink well water have had typhoid fever is no argument against this source, for all are exposed to the possible occasional use of it as we constantly find in such conditions.

The remedy is to discourage the use of all well water—none of it can be safe in such a soil. The wells recognized as bad ought to be closed. There is little doubt that the substitution of water from a remote and uncontaminated source for all wells would relieve you of the recurring outbreaks of typhoid fever. Your board should also require disinfection of typhoid excreta.

A copy of the report of Professor Tucker upon his examination of samples of water sent by you is enclosed.

Very respectfully,

BAXTER T. SMELZER,

Secretary

ALBANY, *October* 2, 1899

B. T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—I enclose herewith reports upon the analyses of six samples of water received by your order on September 18 from Dr. J. O. Randall, Silver Springs. Two of the four well waters are of unsatisfactory quality, and I have advised that their use be discontinued, especially under the circumstances as stated by Dr. Randall as to existing conditions. No. 517 shows no evidence of pollution, aside from nitrites—not sufficient to condemn it under the circumstances. No. 518, a well water, is not entirely satisfactory, and I have recommended that if used it be boiled, having regard to existing conditions The village water supply, No. 520, is of satisfactory quality but the sample from the pump station is less satisfactory.

Very respectfully,

WILLIS G. TUCKER,

Director

No. 515

STATE BOARD OF HEALTH OF NEW YORK

Analysis of potable water (results are parts in 100,000)

Received from Dr. J. O. Randall, Silver Springs; date received, September 18, 1899; source, driven well; how labelled "Downing well;" appearance: color, light greenish; turbidity, none; sediment, none; odor at 100 degrees F., none; chlorine in chlorides, 4.80; free ammonia, 0.0085; albuminoid ammonia, 0.0055; nitrites, 0.0045; total solids, 45.80; loss on ignition, 12.20; behavior during ignition, darkened very slightly; mineral matter, 33.60; remarks, not satisfactory; advise to discontinue use.

WILLIS G. TUCKER,

Director

Dated at State Board of Health laboratory, Albany, N. Y., October 2, 1899.

No. 516

STATE BOARD OF HEALTH OF NEW YORK

Analysis of potable water (results are parts in 100,000)

Received from Dr. J. O. Randall, Silver Springs; date received, September 18, 1899; source, driven well; how labelled, "Rauf well;" appearance: color, light greenish; turbidity, none; sediment, trifling; odor at 100 degrees F., none; chlorine in chlorides, 5.50; free ammonia, 0.0193; albuminoid ammonia, 0.0053; nitrites, 0.0013; total solids, 39.80; loss on ignition, 9.20; behavior during ignition, darkened very slightly; mineral matter, 30.60; remarks, not satsfactory; advise to discontinue use.

WILLIS G. TUCKER,
Director

Dated at State Board of Health laboratory, Albany, N. Y., October 2, 1899.

No. 517

STATE BOARD OF HEALTH OF NEW YORK

Analysis of potable water (results are parts in 100,000)

Received from Dr. J. O. Randall, Silver Springs; date received, September 18, 1899; source, dug well; how labelled, "Surdam well;" appearance: color, light greenish-yellow; turbidity, none; sediment, very slight; odor at 100 degrees F., none; chlorine in chlorides, 0.80; free ammonia, trace; albuminoid ammonia, 0.0015; nitrites, 0.0014; total solids, 18.60; loss on ignition, 4.20; behavior during ignition, darkened very slightly; mineral matter, 14.40; remarks, satisfactory quality.

WILLIS G. TUCKER,
Director

Dated at State Board of Health laboratory, Albany, N. Y., October 2, 1899.

No. 518

STATE BOARD OF HEALTH OF NEW YORK

Analysis of potable water (results are parts in 100,000)

Received from Dr. J. O. Randall, Silver Springs; date received, September 18, 1899; source, driven well; how labelled, "Wheeler well;" appearance: color, light greenish; turbidity, none; sediment, trifling; odor at 100 degrees F., none; chlorine in chlorides, 3.90; free ammonia, 0.0055; albuminoid ammonia, 0.0037; nitrites, 0.0033; total solids, 41.00; loss on ignition, 12.40; behavior during ignition, darkened very slightly; mineral matter, 28.60; remarks, not entirely satisfactory; advise to boil if used under circumstances as stated.

WILLIS G. TUCKER.
Director

Dated at State Board of Health laboratory, Albany, N. Y., October 2, 1899.

No. 519

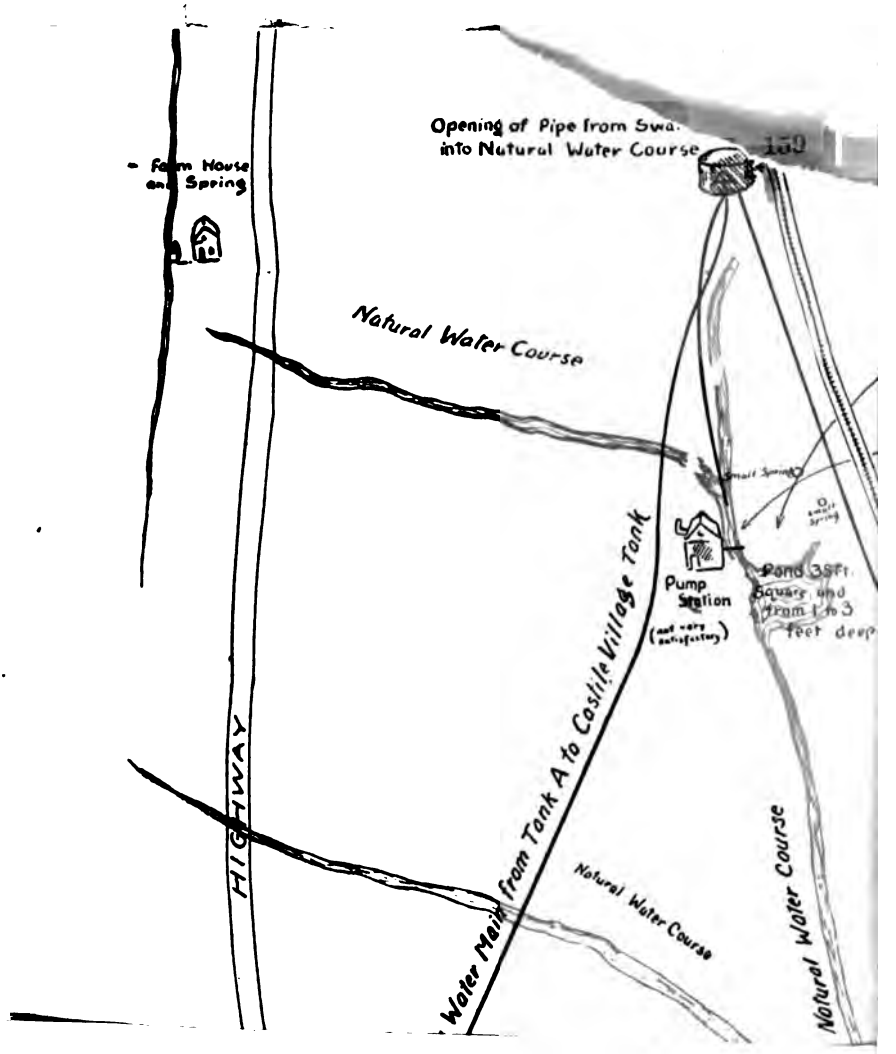
STATE BOARD OF HEALTH OF NEW YORK

Analysis of potable water (results are parts in 100,000)

Received from Dr. J. O. Randall, Silver Springs; date received, September 18, 1899; source, "from pump station on water course, below accumulating tank A;" how labelled, "from pump station;" appearance: color, greenish-yellow tint; turbidity, none; sediment, very slight; odor at 100 degrees F., none; chlorine in chlorides, 0.20; free ammonia, 0.0115; albuminoid ammonia, 0.0097; nitrites, none; total solids, 24.20; loss on ignition, 6.40; behavior during ignition, darkened; mineral matter, 17.80; remarks, not entirely satisfactory.

WILLIS G. TUCKER.
Director

Dated at State Board of Health laboratory, Albany, N. Y., October 2, 1899.


Opening of Pipe from Swa
into Natural Water Course
Farm House
and Spring
Natural Water Course
Pump
Station
(not water satisfactory)
Pond 35Ft.
Square and
from 1 to 3
feet deep
HIGHWAY
Water Main from Tank A to Castle Village Tank
Natural Water Course
Natural Water Course

THE NEW YORK
PUBLIC LIBRARY
ASTOR, LENOX AND
TILDEN FOUNDATIONS

No. 520

STATE BOARD OF HEALTH OF NEW YORK

Analysis of potable water (results are parts in 100,000)

Received from Dr. J. O. Randall, Silver Springs; date received, September 18, 1899; source, " village water supply;" how labelled, "village water supply;" appearance: color, light greenish; turbidity, none; sediment, none; odor at 100 degrees F., none; chlorine in chlorides, 0.15; free ammonia, 0.0045; albuminoid ammonia 0.0023; nitrites, none; total solids, 24.80; loss on ignition, 2.20; behavior during ignition, darkened very slightly; mineral matter, 22.60; remarks, satsfactory quality.

WILLIS G. TUCKER,
Director

Dated at State Board of Health laboratory, Albany, N. Y., October 2, 1899.

ROTTERDAM-GUILDERLAND DRAINAGE NUISANCE

SCHENECTADY, *August* 15, 1899

Board of Health, State of New York:

Gentlemen—In the matter of the drainage of lands in Guilderland, Albany county, and Rotterdam, Schenectady county, and incidentally of the flooding of the lands of Jacob Wetherwax, of Guilderland.

In accordance with the suggestions made to my counsel, Mr. Yates, in his interview with you last week, I respectfully present to you the following state of facts and documents in support thereof:

As long ago as 1890 a conflict of opinion arose as to the draining of swamp land on the south side of a cross road, running along the northerly boundary of the lands of Jacob Wetherwax, and disputes and discussions arose until the situation became

such that the matter was referred to the Board of Health of the state of New York. Previous to this reference Mr. Wetherwax had had expert engineers on the grounds and had had the premises fully surveyed, had taken their judgment and opinion, which was found to be in accordance with the subsequent official action of the Board of Health. I submit herewith the report of Chas. C. Brown, a professor of engineering in Union college, whom, the records of your department will show, was directed on the part of the state to examine the situation and report thereon.

"Dear Sir—I have the following report to make of my investigation of the drainage nuisance complained of, lying in the towns of Guilderland and Rotterdam, Schenectady county.

"Originally the marsh or swamp lay on both sides of the road, on the town line, and evidence is conflicting as to the direction in which what little drainage the piece had was effected. The facts are that no drainage could be effected in any direction without ditches cut through low parts in the ridge, shutting in the swamp. I am disposed to think that a ditch on the Rotterdam side of the line drained the land on that side, except when it became obstructed, and part of the drainage across the road where opportunity offered. The same can probably be said of the ditch on the Guilderland side. The ditch on the Rotterdam side has now been filled up and all the swamp must be drained by the Guilderland ditch. This ditch is not deep enough to do this duty and as a consequence there is quite a swamp on that side of the line. The continuance of the swamp on the Rotterdam side has been stopped by some filling and scraping and manipulation of the road, ditches and culverts. Consequently, the drainage from this side undoubtedly affects the Guilderland side injuriously through the sand ridge, either ditch reaching finally the same outlet ditch into Normanskill. This ditch can just as readily be dug on one side as the other and probably at about the same expense, but the ditch on the Rotterdam side can be kept open easily. In consideration of the facts that the swamp lies in two towns that either ditch must be dug through the property of other parties and of the state as the case at present, I believe the best solution

of the case is for each side of the road to take care of its own drainage and to close up all openings through the road at this place so that neither side will receive any water from the other. So far as I have been able to interpret the evidence, which is rather conflicting, this will be returning to the original plan, except that there were openings in the road through which drainage was interchanged as the ditches were free from obstruction.

"Respectfully submitted,

"CHAS. C. BROWN, C. E."

Your honorable body will observe that the gist of this whole matter is that the situation is sufficiently uncertain, at least, to require that the best interests of the state, the health and peace of the community, will be best subserved by directing the towns of Rotterdam and Guilderland to each drain their own premises, and it is believed that an examination of the situation, should the Board again desire to make it, will confirm the belief that the report made to this Board above submitted is the only way out of the trouble.

In my old days a taxpayer to my state for many years, and endeavoring at all times to be a law-abiding citizen, having done everything I could to avoid litigation, having paid out all the money I can afford to set the question at rest, I now feel justified in asking the help of your department.

I am annoyed by the useless reopening of the question, by interference with the ditches and drainage caused by the change of town politics, and I fear my meddlesome enemies. I therefore ask that the respective supervisors of Rotterdam and Guilderland and the town boards of health of each town, or whatever persons may be necessary to be notified, be directed to obey the conclusion that the Board of Health arrived at nearly 10 years ago, and that all persons be directed not to interfere with the road culverts, as then directed to be closed. It is believed that this order, once issued by the State Board of Health, and a determination on their part shown to enforce their authority in accordance with the

decision already made, will set the question at rest and satisfy not only your petitioner, but the whole community, unnecessarily embroiled by continual disturbance of the situation.

So the Board will observe that this opening and closing is the cause of continual disturbance and unnecessary worry to the petitioner, who asks now that the commissioner of Guilderland, who has recently opened the sluiceways or culverts, shall be directed to close them and leave them in that condition. The petitioner is obeying the law and respectfully insists that other people shall be compelled to do the same.

Respectfully,
JACOB WETHERWAX

SCHENECTADY, N. Y., *December* 31, 1899

BAXTER T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—I beg to submit the following report on my examination of the defective drainage on and adjacent to the lands of Jacob Wetherwax lying in the town of Guilderland, Albany county, and adjacent to the town of Rotterdam, Schenectady county.

This same drainage matter came before your Board in 1890 and was examined and reported on by Prof. C. O. Brown, consulting engineer of the State Board of Health, on May 9, 1890, and this report appears in the 11th annual report of the State Board of Health, vol. 2, page 422.

The sketch map accompanying that report shows the condition of the lands on which the drainage defects occur, and I find the conditions there described to be the same as exist at the present time, substantially. Although the highway shown on the sketch between Wetherwax and Van Patten is the dividing line between the two towns, still the care and control of the highway at this particular place is vested in the highway commissioner of the town of Guilderland by mutual agreement between the commissioners of the two towns adjoining. The old ditch through Van Patten's land having been closed up as shown on Professor

Brown's map, an outlet for the water collecting on the Van Patten property was sought through the highway and through the Wetherwax property. To secure this the highway commissioner of Guilderland having control of the highway at this point opened the culvert through the highway at the place marked "new culvert" on the Brown map, in order to relieve the accumulation of water along the sides of the highway at this point. Acting under what Mr. Wetherwax supposed to be an order from your Board closing the highway for drainage, but which was evidently a mistake in construing Professor Brown's recommendations into an order, Mr. Wetherwax has repeatedly closed the culvert and it has been repeatedly opened by the Guilderland highway commissioner. This opening by the commissioner has usually or always been done during high water and when the water had accumulated along the highway on the north side. This sudden opening discharging suddeuly a large amount of water has evidently been an injury to Mr. Wetherwax, as his ditches have been inadequate to take the accumulated water thus suddenly let down on his land, though I am inclined to think that the ditches, if kept in their normal condition, would have been ample to provide for the small amount of additional drainage coming through the highway if allowed to flow off gradually as it collected and not allowed to accumulate.

To restrain the Guilderland commissioner from opening the culvert in the highway Mr. Wetherwax some years ago brought an action before the supreme court in Albany county asking an injunction against the opening of the culvert. The motion was denied by the court without hearing the defendants. It is perfectly feasible to drain either toward the north or toward the south or to close up the culvert and drain both ways from the highways, apart from the legal rights of the several parties, and if nothing but the physical conditions of the lands were to be considered, I should recommend that the culvert be closed and that each town take care of its own drainage, as Professor Brown recommended. In view, however, of the uncertainty as to the legal rights involved if such a recommendation were adopted and

made the order of your Board, and the probability that such an order would lead to further strife and dissention before it could be enforced, I am of the opinion that the better procedure would be for the State Board of Health to direct the local boards of health of the towns of Rotterdam and Guilderland to convene and to order the abatement of the unsanitary conditions which exist at this place on account of the defective drainage, and to recommend to the two local boards that, inasmuch as the local boards have no authority to designate the particular method by which a nuisance shall be abated, the two local boards unite with the supervisors of the two towns, and if possible the landowners concerned, in a petition to the supreme court to appoint a drainage commission to consider the matter of the defective drainage, and to carry out the necessary steps to secure the completion of the needed improvements. The law under which such action would be taken comprises chapter 888 of 1869; chapter 303 of 1871; chapter 636 of 1886, and numerous acts amendatory thereto since those dates. By reference to section 2 of chapter 636 of 1886 you will observe that the law contemplates provision for public health as in the present case. There is no doubt that an unsanitary condition exists on the north side of the highway when the culvert is closed, and on the south side after it has been opened during high water.

I am, dear sir, very truly yours,

OLIN H. LANDRETH,

Consulting engineer

NISKAYUNA DRAINAGE DEFECTS

To the State Board of Health:

Gentlemen—About six weeks ago I, the undersigned, together with several residents of the town of Niskayuna, presented to the board of health of the said town of Niskayuna a petition calling the attention of said board of health to the unhealthy

condition of a certain plot of land lying adjacent to the city of Schenectady upon which there is stagnant water in such condition as to be dangerous to the health of the residents in the portion of said town in which the same is located.

This plot of land referred to is situated on the lands of Furman and Denby, on the north side of the highway known as the Albany and Schenectady turnpike.

Since the making of said petition and the presentation of the same nothing has been done by the said board of health, and as the warm weather is now at hand the residents in that portion of the said town in which the said stagnant water is are very much in fear that it may be the means of causing disease and contagion, and be a manace to the health of the community; therefore your petitioner, the undersigned, respectfully asks the assistance of the State Board of Health for the purpose of abating the meance herein referred to.

Respectfully submitted,

Dated *June* 30, 1899. J. B. BAILEY

STATE OF NEW YORK, } *ss.:*
COUNTY OF SCHENECTADY, }

I, the undersigned health officer of the town of Niskayuna, in the county of Schenectady, N. Y., do hereby certify that I have inspected the premises referred to in the annexed petition, and find that a stagnant pool of water exists upon the lands of Furman and Denby, which said pool of water, in my judgment, renders the locality in question unhealthy and might be the cause of creating disease, and is a menace to the health of the community.

BURTON VAN ZANDT, M. D., 704 Albany street

Dated SCHENECTADY, *June* 30, 1899

To the Board of Health of the town of Niskayuna:

Gentlemen—We, the undersigned residents of the town of Niskayuna, residing on the northerly side of State street, continued in said town and closely adjoining the city of Schenectady, do hereby call your attention and complain of the unhealthy

condition of certain lands in said town lying northerly of said State street and nearby the city line as aforesaid, the cause of our complaint being due to stagnant water standing in a certain ditch on said lands, due to said ditch being not properly cared for and opened so as to permit the said water to run off the said land, which is of a low, moist and swampy character. If the said water be permitted to remain stagnant, as it now is, it will certainly generate and spread disease, and is at present a menace to the health of the undersigned. The lands upon which the said water is belongs, as your petitioners are informed and believe, to Denby and Furman. It is earnestly hoped by your petitioners that immediate action will be taken in this matter and the nuisance abated and the danger incident thereto removed.

Henry Van Patten	J. T. Gaedmill
Robert Shaw	Nicholas Scholter
John Wilson	Simeon Beebe
Fred Schiller	D. H. Williams
Chas. Holtzmann	J. H. Amo
F. W. Rankins	P. Devendorf
J. Banks Bailey	James Buckley
John Allen	Chas. Tillapaugh
James Myers	Geo. G. Brown
H. S. Moore	John Plant
Henry Brown	W. H. Appe
J. Henry Vogel	H. L. McCormick
F. H. Kopper	J. F. McCormick

Dated *May* 2, 1889.

SCHENECTADY, N. Y., *December* 31, 1899

BAXTER T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—I beg to submit the following report on my investigation of the defective drainage on the lands of Furman and Denby in the town of Niskayuna and adjacent to the city of Schenectady.

H. E. Furman is the owner or joint owner of a tract of land near the city of Schenectady, in the town of Niskayuna, and closely adjacent to a portion of State street (Schenectady) prolonged, which is quite closely built up with residences. This tract of land contains a low portion, which is wet in wet weather but which has always—or at least for many years past—had drainage through the adjoining lands of a Dr. Denby, a resident of New York city, whose agent in charge of the tract of land is Marcus Wing, of Schenectady. I talked with several men who have known the property continuously for from 20 to 35 years, including a former owner of the Denby tract, all of whom stated that the ditch by which the Furman and Denby lands were drained had been in use without interruption during their knowledge of the land. The land in question has no other means of drainage without the cutting of an artificial channel by a route longer and deeper than the one by which it has always been drained. During comparatively recent years it appears to have been the custom for the owners of the two tracts to divide the cost of keeping the drainage ditch open when it required any attention, and Furman denies having ever declined to continue to assume one-half the expense. During the past summer Denby had the ditch draining the two properties filled up, thus destroying the drainage of the Furman tract and causing the water to accumuulate in the low parts.

At the time of my first examination I found water standing in two cellars near by at the same level as the water standing on the Furman tract and the occupants stated that though they frequently had water to enter their cellars in early spring it was unusual for it to occur during the early fall, as was the case at the time of my examination. There is no doubt in my mind as to the fact that the accumulation of water in the low parts of the Furman tract is unsanitary and a menace to the health of the immediate inhabitants, as claimed in their petition to the local board of health. It is quite likely the case that Furman, who owns but does not occupy the tract has been injured by the closing of drainage and would be again benefited by its opening,

but I do not see that that fact should stand in the way of removing an unsanitary condition, particularly as the condition has been brought about by a definite and a recent act apparently without warrant. These are the facts as I have been able to gather them. I fixed two different dates for meeting Mr. Wing, the agent of the Denby tract, but he did not appear at either time and I have been unable to learn anything from him as to the matter. Mr. Furman furnished me an opinion of an attorney as to the right of Denby to close the ditch, a copy of which opinion I append hereto. In view of the facts as stated I beg to recommend that in accordance with the last clause of section 25 of the Public health law the State Board of Health direct the board of health of the town of Niskayuna to convene and declare the existence of the ponds and ditches of standing water on the lands of Furman and Denby to be a nuisance, and the filling in of the drainage ditch through Denby's land to be a nuisance contributing to and producing the former nuisance, and direct the board of health of Niskayuna to order and enforce the abatement of the above mentioned nuisances.

I am, dear sir, very truly yours,

OLIN H. LANDRETH,

Consulting engineer

To H. E. Furman:

Dear Sir—Replying to your inquiry as to whether the ditch which crosses your land and the adjacent land of one Denby was rightfully closed, the closing of which has caused and does cause the cellars in the vicinity of the ditch in question to become damp and water to stand therein, would say that I am quite authentically informed that the ditch is the drain of this locality and has been used as such for more than 50 years, and during that period it was always recognized and maintained as such until recently closed. In view of this fact I am of the opinion that the closing of said drain was unauthorized.

Yours truly,

DANIEL NAYLON, JR.

POLLUTION OF WATER OF AUSABLE RIVER

KEESEVILLE, N. Y., *August* 21, 1899.

New York State Board of Health, Albany, N. Y.:

We have analysis of water in the Ausable river made by B. T. Smelzer under date of November 15, 1897. The condition of the river has steadily grown worse ever since, and now it is low water and we would like to have it inspected by your Board or one of them.

Answer at once and let me know what it will cost us to have your man come and see it as it is.

M. A. THOMAS,
Water commissioner, Keeseville, N. Y.

ALBANY, *August* 23, 1899

M. A. THOMAS, *Water commissioner, Keeseville, N. Y.:*

Dear Sir—I am in receipt of your communication of the 21st instant requesting that a representative of this Board be sent to Keeseville for the purpose of examining the condition of Ausable river.

In reply you are informed that one of the officers of this Board will visit Keeseville in a short time for the purpose of making the desired investigation.

You will be notified when our representative will visit Keeseville.

Very respectfully,
BAXTER T. SMELZER,
Secretary

UTICA, N. Y., *September* 26, 1899

Honorable the State Board of Health:

August 25 last Secretary Smelzer directed me to visit Keeseville, N. Y., and investigate the complaint of M. A. Thomas, water commissioner of Keeseville, relative to the pollution of the water

supply of the village. Arrangements were made, and on the 31st of August I met Mr. Thomas, with Mr. Prescott, president of the village, and together we inspected the location of all sources of sewage discharged into the Ausable river, the condition of the river bed and banks, and the intake to the water supply. My investigation may properly follow these lines and be expressed in the three propositions:

First—Is the water supply of Keeseville polluted as alleged by the village commissioner?

Second—If the supply be polluted, what are the causes?

Third—If the causes of the pollution can be located, what are the remedies?

To clearly understand things a little history is necessary. Keeseville is a thrifty, substantial village of 2500 inhabitants. Founded long ago, manufactures of horse nails and lumber have grown up, utilizing the water power at this point provided by the Ausable river. This river rises in about the center of Essex county, one branch of it finding its source in the very summits of the highest of the Adirondack mountains, Mt. Marcy, Haystack, Sabele and others. This branch flows in a northerly direction through the Ausable lakes and the beautiful Keene valley, augmented very frequently by creeks and brooks from the mountain slopes on either side. At Ausable Forks this branch is joined by another, or west branch, flowing nearly the same volume of water. Rising on the northerly slopes of Mt. McIntyre, it soon meets the outlet of Lake Placid, and flowing northeasterly between the mountain ranges for 28 to 30 miles, it meets the east branch or Keene valley branch at Ausable Forks.

From the junction the river flows with moderate fall 12 miles to Keeseville; thence about six miles more to Lake Champlain, passing through the famous Ausable chasm, three or four miles from the lake.

Keeseville is on both banks of this river, about six miles from its mouth. Most of the river's watershed is made up of forest covered mountain slopes, a large percentage of it being virgin forest. At the bases of these slopes springs abound. Many of the brooks find their origin in ponds or lakes.

On the whole watershed of 500 and more square miles above Keeseville there are less than half a score of villages, and all but three of these are the merest hamlets. Ausable Forks, Lake Placid and Keene Valley are the three towns with any population to speak of living there the year around. In these towns the summer population is largely augmented.

First—Is the water supply of Keeseville polluted?

The water supply of Keeseville is taken from the Ausable river. The supply of water in the distribution system is maintained by a pumping plant.

The pumps are located in a building on the right bank of the river at the head of the mill race leading from the dam built across the river near the upper part of the village. The water from this mill-race is taken into the wheel pit of the pumping plant, and an enlargement of this wheel pit is the well in which the suction pipe of the pumps is placed. The pumps are run by water power and pump directly into the mains. The pumps are in duplicate, and ordinarily the power of the wheel is ample to maintain 80 pounds pressure on the mains at the pump. Both pumps can be thrown in and the pressure increased for fire purposes. The system was put in use in 1885.

There is not now nor has there been an epidemic of diseases in Keeseville. The people are at least ordinarily healthy. When the mains were first laid the householders generally became consumers of the public water, abandoning their wells. Keeseville has no system of sewers and there are few private drains or sewers. I found only one pipe discharging into the pond above the intake, and that comes from a boarding school maintaining a household of about 25 to 30 persons. Its sewage discharge is limited, and it is on the opposite side of the river from the intake to the pumps, and not far from the head gates of the mill-race on the left bank of the river, so that its discharge is naturally drawn into that race and away from the pumps. I saw one building only whose tenants used outhouses located directly over the river and above the intake. These two sources of possible pollution are the only visible ones. They could and should be removed.

There being no sewer system in use, modern water-closets and plumbing arrangements are not common. They are rare.

The people use privy vaults and the kitchen wastes are thrown or run onto the land in the back yards. The soil on the surface and under it is the usual Adirondack sand and gravel. It receives the household wastes and filters them. Any effluent reaching the river must be filtered water.

In seeking further sources of pollution I drove up the river to its sources. Through the farming districts the highways, hence the farm buildings, are very generally a considerable distance from the river. The soil is universally sandy, so that waters from these farm buildings are filtered before reaching the river.

Twelve miles above Keeseville is the village of Ausable Forks, located on the flat lands. Its population may be 800 people. No sewer system in use, and the household wastes, or the liquid portion of them, are filtered through the sandy and gravelly soil, as at Keeseville.

Twenty-six miles up the west branch and 22 miles up the east branch of the Ausable are the villages of Lake Placid and Keene Valley. They are summer resorts. Hotels and cottages for summer residents make the bulk of these villags. Any sewage matter they create, if it reaches the Ausable stream, must pass through lakes and still waters, over falls and down rapids. Its quantity is too minute to appear, as shown by an analysis of the Ausable water taken from its west branch at a point near Wilmington notch. The analysis was made by Prof. Willis G. Tucker, at the State Board laboratory, September 15, 1899, as follows.

No. 513

STATE BOARD OF HEALTH OF NEW YORK

Analysis of potable water (results are parts in 100,000)

Received from Hon. C. W. Adams; date received, September 6, 1899; source, Keeseville water supply inspection; how labeled, "West branch Ausable at Wilmington, N. Y., 'xx' before any dis-

charges from the mill reach the river." Appearance: Color, light greenish yellow tint; turbidity, none; sediment, trifling; odor at 100 degrees F., none; chlorine in chlorides, 0.15; free ammonia, 0.0062; albuminoid ammonia, 0.0075; nitrites, none; total solids (residue colorless), 5.40; loss on ignition, 3.60; behavior during ignition, darkened; mineral matter, 1.80; remarks, this water is decidedly superior to sample No. 512, and is of quite satisfactory quality for a surface water.

WILLIS G. TUCKER,
Director

Dated at State Board of Health laboratory, Albany, N. Y., September 15, 1899.

This analysis shows no pollution by sewage, and it shows a good, potable water. Lake Placid village is six miles from the point where this sample of water was taken, and if there is no pollution of the water here, it is still more certain that there is no pollution of the water of the east branch by sewage from Keene Valley.

The following analysis, also by Prof. Tucker, made September 15, 1899, is that of a sample of water taken from the mill-race immediately at the point where the water enters the wheel pit of the pumping plant at Keeseville.

No. 512

STATE BOARD OF HEALTH OF NEW YORK

Analysis of potable water (results are parts in 100,000)

Received from Hon. C. W. Adams; date received, September 6, 1899; source, Keeseville water supply inspection; how labeled, "Flume at the intake of the pump." Appearance: Color, decided brownish tint; turbidity, slight; sediment, slight; odor at 100 degrees F., slight; chlorine in chlorides, 0.20; free ammonia, 0.0070; albuminoid ammonia, 0.0140; nitrates, none; total solids (residue brownish), 23.20; loss on ignition, 16.20; behavior during ignition, blackened and involved strong odor; mineral matter, 7.00; remarks, this water is not of very satisfactory quality for domestic

use. It contains considerable organic matter, evidently chiefly of vegetable origin, and shows little evidence of sewage pollution.

WILLIS G. TUCKER,
Director

Dated at State Board of Health laboratory, Albany N. Y., September 15, 1899.

This analysis shows a lot of organic matter.

As an interesting comparison I submit the following analysis of Ausable river water taken from a point a little way above the intake to the pumps at Keeseville in November, 1897, and analyzed by Prof. Tucker November 15, 1897.

No. 407

STATE BOARD OF HEALTH OF NEW YORK

Analysis of potable water (results are parts in 100,000)

Received from M. A. Thomas, water commissioner, Keeseville, N. Y.; date received, November 10, 1897; source, Ausable river, one-quarter mile above Keeseville; how labeled, " Sample of water from Ausable river, Keeseville, N. Y." Color and appearance: Transparent, decided yellowish tint; slight flocculent sediment; odor at 100 degrees F., slight, earthy; chlorine in chlorides, trace; free ammonia, 0.0065; albuminoid ammonia, 0.0118; nitrates, none; total solids, 8.80; loss on ignition, 5.60; behavior during ignition, blackened; mineral matter, 3.20; remarks, fair quality.

WILLIS G. TUCKER,
Director

Dated at State Board of Health laboratory, Albany, N. Y., September 15, 1899.

A comparison shows the organic matter to have largely increased from November, 1897, to September, 1899, as shown to be contained in the two samples of water. The volume of water flowing in the river on September 1, 1899, was very much under the normal flow, according to Commissioner Thomas, but it does not appear what the relative flow was on November 7, 1897.

Both samples being taken in the autumn season when the Adirondack streams are at their lowest stage (as shown by our study of the Hudson river watershed and published in the State engineer's report for 1896) it is fair to compare them. This comparison shows that the water supply of Keeseville is polluted and the pollution is increasing.

The observed effect of this pollution is not increased sickness. It is seen in the diminished pressure and lessened supply of water at the faucets in the houses, in the failure of water motors to run, and in other places where the supply to the consumer is through small pipes. These small pipes become clogged with an accumulation of a brownish colored, flocculent, slimy, viscous substance, which adheres to the sides of the pipes, and cannot be forced out with the available pressure on the mains. It is seen in the water-closet flush tanks; in the public drinking fountains. It is plainly seen on the river bottom where low water has exposed formerly submerged surfaces. The damage it does appears in the lessening use of the public water supply by the people, and a return to well and cistern water. A further danger is feared that the increasing quantity of this substance will eventually clog the smaller mains and hydrant connections, increasing the fire risk.

From the foregoing the first proposition seems to me to be answered affirmatively. The water supply is polluted.

Second—If the supply be polluted, what are the causes?

In seeking the causes or sources of pollution of a water supply, a first step is an analysis of the water to reveal the character of the pollution. Analyses of samples of this water have been made by Professor Tucker and their results are given above. Pollution by sewage is not indicated by them nor should it be expected from what I have shown to be the conditions existing. One privy used by two or three families discharging directly into the pond at Keeseville and one small sewer pipe discharging the sewage from a small private school, into the same pond but on the opposite side from the intake to the pumps, are conditions that are objectionable and can and should be removed, but their relative volume compared with the flow of water in the river is insignificant. Not one chance in one thousand that any of this sewage

could be taken into the pumps. As the dam is 175 feet long and the water flows normally six inches deep over it with head gates shut, and the service requires only about 350 gallons per minute, the relative volume is readily seen.

Any pollution of the river by sewage matter above Keeseville, from the facts and conditions I have set out above in describing the watershed, is too remote to be considered. The analysis given shows there is no such pollution.

The cause must be located elsewhere, and we believe it to be in the pulp mill on the west branch of the Ausable about one mile above Ausable Forks. According to Commissioner Thomas, the water pumped was clear and pure and satisfactory for 10 years. Then trouble began a year or so after the erection of this pulp mill. It is the only pulp mill and the only manufacturing industry on the river above Keeseville. To connect it with the known pollution, consider these facts: The pulp mill in question is owned and operated by the J. & J. Rogers company. It is equipped with modern machinery for making wood pulp by the sulphite process from spruce wood. From the spruce log to the compleed pulp this process is briefly described:

The logs are cut, put into the streams and floated to the mill. The mill runs day and night all the year, consuming 200 cords in 24 hours, but the logs are sent to the mill only by the spring drives, lasting a month or so in the spring of the year. It follows that a large percentage of the year's supply of logs is collected in booms and lies soaking in the river above the mill for months. The bark is on the logs and the tannin and coloring matters in the wood and bark are to a considerable extent released, and at least discolor the water.

Soaking the logs facilitates the process of making the pulp, but it is not essential, and as the logs of necessity are removed from the river before the pulping process begins, why not remove them at once and largely reduce the discoloration of the water?

When the log gets into the mill the process begins in the removal of the bark. It is then split into pieces and these are further cleaned of any remaining bark, and the rotten knots and parts cut out. The split pieces are then chipped by a machine into small chips. The chips are sorted to some extent. The re-

fuse chips and bark are carried to the boiler house and burned for making steam. The wood in this finely divided state is carried into the digesters in which it is cooked.

A large size digester will hold 25 cords of wood besides the liquor required to cook it, say 15,000 gallons or more.

The liquor for cooking is prepared in the Rogers mill by burning commercially pure sulphur in a furnace retort, to produce sulphurous acid gas, forcing the gas through water in tanks, which water has been previously combined with lime and magnesia in solution. The digester is heated with steam and its contents of liquor and wood are heated and boiled with a constantly augmented steam heat, continuing the cooking perhaps two days and nights. When the "cook" is completed the liquor is blown off and wasted into the river. The pulp remains and is removed to the presses where all the remaining liquor is forced out which it is possible to do under enormous hydraulic pressure. What remains of the *sulphite wood pulp*, and later, in the form of paper, together with the product of other sulphite mills, it is 15 per cent to 20 per cent of the paper upon which all the newspapers of to-day are printed.

Analyses of unbleached sulphite pulp have been made by A. D. Little, of Boston, an author of works on paper making, and a high authority on the subject of wood pulp processes.

They show that such wood pulp as above described consists of from 80 per cent to 90 per cent "cellulose," five per cent to 10 per cent moisture, one and five-tenths per cent of mineral matter—lime, magnesia and sulphur, in various chemical combinations—one per cent. to nine per cent. of other substances, which is called "lignin," and is the encrusting material which fills in and around the fibre composing the wood of the living tree and hence of the spruce log.

The object of the whole process has been to separate and remove this "lignin" from the fibre or "cellulose," and the percentage of lignin remaining in the pulp is what escaped the action of the heat and acids in the digester. The pulp maker wishes it was not there but had gone off with the wasted liquor.

Of the whole volume of wood put into the digester as spruce chips, only about 50 per cent of it comes out as pulp. The remainder is blown off with the waste liquor, in combination or solution. It is the useless portion of the wood for pulp, the resin, gum and other organic matters, as well as some of the lime, magnesia and sulphur which was put into the liquor.

This waste liquor has been studied by chemists. They find that it contains some chemical substances which if removed would be of value, but their relative quantity compared with that of the liquor has so far rendered abortive all attempts at recovery on a commercial scale.

In the course of my inquiry as to the treatment of this waste liquor the Rogers company state that they do not treat it but are interested to learn of any promising method and would like to take it up.

An analysis given by Chemist Little of this waste liquor shows that it contains per litre (.264 gallons)—sulphurous acid, 3.86 grammes; sulphuric acid, 7.33 grammes; chlorine, 0.29 grammes, and by evaporation of one litre, and drying, yielded 109 grammes of residue, which on ignition left 19 grammes of ash, containing mostly lime, with some magnesia, potash and soda. There were, therefore, 90 grammes of organic matter per litre.

It is plain then what a very large quantity of organic matter is discharged into the Ausable river by the Rogers mill when it is remembered that the mill consumes 200 cords of spruce per day. One digester "cooks" 25 cords at a time and requires 60 cubic metres of liquor in which to cook it; 60 cubic metres equal 15,846 gallons. Two hundred cords of wood per day fill eight digesters containing 25 cords each, and therefore require 126,000 gallons of liquor per day, which is discharged into the river, and about 10 per cent of this is organic matter.

Third—If the causes of the pollution can be located, what are the remedies?

I have shown that the cause, far and away greater than all others, is the sulphite pulp mill at Ausable Forks. Also a possible small pollution by sewage at Keeseville.

What are the remedies?

This is the vital question and it demands most careful consideration. I suggest four steps:

First—Exercise the full power of the State Board of Health and direct the J. & J. Rogers company of Ausable Forks to cease discharging the liquid wastes from the pulp mill they operate near that village into the Ausable river, except after giving it such treatment that the effluent liquid shall not pollute the stream.

Second—Direct the board of trustees of Keeseville to take such action as will remove the privy built over the bed of the river and attached to some buildings located on the right bank of the river a few hundred feet above the dam and intake. Then provide a sewer or other means of receiving and discharging the soil and wastes of the tenants of the buildings to a point below the dam. Also that they shall cause the sewer connected with the McCauley academy, and now discharging into the river from the left bank near the bridge just above the dam, to be extended down the river with its new outlet into the mill-race.

Third—If the first step be impracticable, direct the water commission of Keeseville to provide some form of filter that shall effectually purify the water supplied to the pumps; the commission to determine upon the kind of filter or method of purification, subject to the approval of the State Board of Health.

Fourth—Advise the water commission of Keeseville to find some other source of water supply than that now used.

Taking up each of these steps in detail and considering the reasons and effect of the action suggested:

First step—It is in brief to direct the pulp mill owners to stop polluting the stream by liquid wastes from their mill. The broad powers of the State Board of Health could be exercised to carry out such order, and if it were given and enforced it is certain that the water supply of Keeseville would be restored quickly to its former purity. The grounds for the justice of such action appear when we consider that Keeseville was first

on the ground. When it wanted to use a modern system of supplying itself with water, it turned quite properly to the stream running through its midst. The water was clean, clear and pure. It ought to be, for its sources are in the forest covered slopes of the highest mountains in the Adirondacks, while the main stream is constantly being fed by brooks and springs flowing from similar areas. The Adirondack regions, because of their elevation, forest covered areas, poverty of soil for agriculture ensuring forever the sparsity of their settlements, are a natural source of water supply. The region is looked upon by some of our far-sighted citizens as the future source of potable water for even New York city and for the sources of cities and towns in northern, central and eastern parts of the state. A million and more acres of it are already owned by the state and constitutionally retained by it in their natural condition.

These things being so, why should not the Board take this first step and restore the Ausable river to its former condition?

But there is another point of view. Practical men of affairs believe that the timber sources of wealth in the Adirondacks should be utilized. They believe that the valuable woods can be used and the lumbering operations so carried on that the region shall still remain a forest with all that it implies for the people. The forest policy of the state is even now being directed along these lines, as witnessed by its purchase of 30,000 acres for the Cornell college of forestry for the very purpose of practically showing to the people and the owners of other forest lands the principles of scientific forestry, the wise use of the timber wealth they contain.

This policy involves as a matter of fact the cutting and using of the timber. And if it proves a success, lumbering operations in the Adirondacks will never cease, and the capital invested there in the several forms in which wood is the chief object or factor will have a continuing value.

The pertinency of what I have here set out as applied to the Rogers pulp mill is shown by a letter which I have lately re-

ceived from A. D. Little, of Boston, a chemical engineer to whom I have referred before, bearing directly on this subject.

Mr. Little has just returned from Europe, where he has been investigating the sulphite process with especial reference to the treatment of waste liquors. He writes:

BOSTON, *October*, 1899

CAMPBELL W. ADAMS, *75 Arcade, Utica, N. Y.:*

Dear Sir—I regret to have been so long in replying to your letter of September 27, but I have just returned from Europe and am exceedingly busy upon a long report. You are right in your supposition that I wrote the portion of the chemistry of "Paper making" which relates to the sulphite process. Since the publication of the book in 1894 many experiments have been made, for the most part abroad, looking toward the recovery or destruction of the waste liquors from this process. In some cases deep wells have been bored into which the liquors were discharged. This has usually resulted in subsequent pollution of waters at other points and the wells in time choke up. Other mills have built artificial ponds in which the waste waters were impounded and allowed to soak into the ground, but in the course of some months serious nuisances have been created. Still other attempts have been made to get rid of the waste liquors by evaporation and burning, but in every case the mill has been either obliged to abandon the method or *close down.* All attempts which have been made to precipitate the organic matter by the addition of lime to the waste liquor have failed because of the great bulk of sludge produced.

While I was abroad this summer I met many of the best known authorities on the sulphite process and was careful to inquire of them as to whether any process for the treatment of these liquors was believed to be commercially practicable or whether any process for the purpose was anywhere in use, and they were unanimous in stating that no such process is in use and they didn't know of any which was worth a trial.

Resolved, That the secretary transmit to the water commission of Keeseville, and to the J. & J. Rogers company, Ausable Forks, each a copy of this report and of these resolutions.

Accompanying this report is a map I have made of the Ausable river water shed.

Respectfully submitted,

CAMPBELL W. ADAMS,

Consulting engineer

EXAMINATION OF KEUKA LAKE ICE

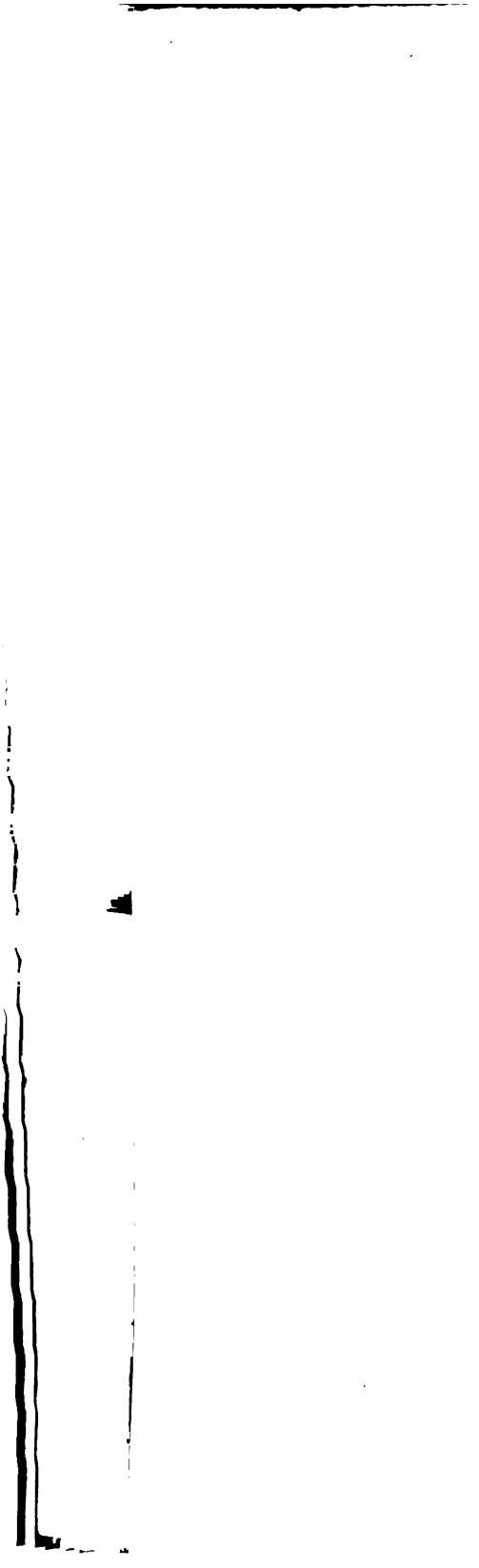
SCHENECTADY, N. Y., *April* 15, 1899

BAXTER T. SMELZER, *Secretary State Board of Health, Albany N. Y.:*

Dear Sir—In the matter of the pollution of ice used in the city of Geneva, I beg to report that agreeable to your verbal instructions of March 29 I visited Geneva on March 30, and with Dr. Edwin R. Bishop, health officer of the city, visited the places where the ice stored by the two rivil companies was cut, and also the ice house at Geneva where the Keuka lake ice has been stored since it was cut.

The Seneca lake ice was cut in the harbor at Geneva just *off* the docks between the steamboat landing and the old Franklin house, the nearest point cut over probably being less than 250 feet from the shore. Along this dock frontage a number of short sewers and one of considerable size and discharge empty into the lake. In addition to this, an old boat is used as a privy by the 150 workmen at a shop near by, the boat being between the Franklin house and the steamboat landing, and I should estimate less than 300 feet from the ice field.

Recognizing that polluted or infected ice is not thoroughly purified by freezing, the danger of using this ice for any purpose where it, or water from it, may enter food or drink should cer-



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tainly prohibit its use as domestic supply, and the difficulty of preventing ice intended solely for cooling purposes from occasionally entering domestic consumption makes its use for cooling even one of questionable propriety.

Although the character of the Keuka lake ice at its point of distribution and not at its source of supply is a question, still it was thought best to inspect the source whence the ice was cut. To that end I visited Keuka lake at Penn Yan in company with Dr. Bishop and with the president of the Keuka lake ice company, Wade Shannon. The place pointed out where the ice was taken is about three-quarters of a mile above the foot of the lake and considerable farther than that from the steamboat landing; it is opposite but farther up the lake from the intake of the Penn Yan water supply. It is said that none of the scattered cottages along the shore sewer into the lake, and that no village has a sewer system entering the lake; this is certainly the case with Penn Yan, which sewers into the outlet below the first dam.

The conditions of the shore were such as to indicate remarkable freedom from incidental pollution, and no visible case of specific contamination. On both sides of the lake the land is generally cultivated and on the east side is quite populously settled, for country districts, so that I should expect to find that in winter a considerable amount of dry decayed or finely divided vegetable matter and dust would be blown onto the ice from the neighboring shores. It is difficult to see, however, how this matter could produce organic pollution of the ice, especially the interior of the ice mass, whence the samples were taken. It seems quite evident to me therefore from the rather hurried examination made, that if the Keuka lake ice examined in Geneva was polluted, that pollution occurred after it left its place on Keuka lake.

In the chemical and biological examinations submitted to your Board from the local health office, the symbols "DED" refer to ice said to have been taken from the ice house in Geneva, which is said to have been filled from Keuka lake. The symbols "XVT" and "FSO" each refer to ice stored in the ice house in Geneva, said to have been filled from the Geneva harbor in Seneca lake. These identifications are due to Health officer Bishop.

The character and surroundings of these two sets of reports did not seem to me to be of such degree of conclusiveness as to warrant the radical step of ordering the use of the ice discontinued, except possibly as a temporary precaution pending further inquiry; my recommendations to the health officer were therefore that further exhaustive examinations be made before finally prohibiting the use of the Keuka lake ice, though the evidence of dangerous pollution of ice cut from Geneva harbor is so strong as to warrant its prohibition for domestic use of any kind, independently of the results of its examination. I beg to append a copy of the report made to Dr. Bishop on leaving Geneva, and to recommend that your Board suspend its final action on the matter until a second examination of the ice shall have been made by another analyst.

I am, dear sir, very truly yours,

OLIN H. LANDRETH,

Consulting engineer

GENEVA, N. Y., *March* 30, 1899

EDWIN R. BISHOP, M. D., *Health officer, Geneva, N. Y.:*

Dear Sir—Agreeable to instructions received from Baxter T. Smelzer, secretary of the State Board of Health, I have to report that I have made an examination of the sources whence the ice sold by the two ice companies was cut, and of the ice house where the Keuka lake ice is stored, and from which the samples for analysis were taken. The examination at Penn Yan failed to show any apparent source of pollution at the place where the ice was cut, and I am of the opinion that if the Keuka lake ice is polluted, it has received such pollution after leaving its source. The matter, however, is of such importance both to the health of your citizens and to the financial interests that I should recommend before final action another rigid examination be made.

Pending such examination and the formation of the final opinion as to the safety of the ice for domestic use, it would appear proper and within the prerogatives of your board to order the temporary suspension of the use of the ice without prejudice. In

this I refer to the Keuka lake ice; the location whence the Seneca lake ice was cut is so near to positive and numerous sources of sewage pollution as to render the ice unsafe for use, particularly if the strong suspicion receive verification by the results of the examination.

I am, dear sir, very truly yours,

OLIN H. LANDRETH,

Consulting engineer

SCHENECTADY, N. Y., *May* 30, 1899

BAXTER T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—I beg to submit herewith my report of the sampling of ice from the ice houses of the Geneva ice company, situated in the city of Geneva, made at your direction and at the request of Wade Shannon, one of the proprietors of the ice company who furnished the ice to the Geneva company. I reached Geneva on the morning of the 17th and met by appointment Mr. Shannon and Dr. Bishop, health officer of the city of Geneva, with some other members of the Geneva board of health, and also Mr. Dempsey and Mr. Fiero, both officials of the Geneva ice company, the latter being the superintendent, living in a residence adjoining the ice houses. As Mr. Shannon was obliged to return to Penn Yan he directed Mr. Fiero to represent him at the sampling of the ice. Dr. Bishop and another member of the board of health were also present and saw the ice sampled, prepared and packed for shipment.

As is usual in the construction of ice houses, the house consists of several compartments, each occupying the entire width of the house, but separated from the adjoining compartment by wooden partitions extending entirely across the width and from ground to attic floor, so that each compartment constitutes a separate house and is filled and emptied independently of the others, access being secured to each by the usual tiers of doors, forming a continuous opening from ground to attic and secured by each one closing over the one below it, the upper door being kept

locked. At the time of my visit on the 17th ice had been used from the upper part of compartment No. 1—counting from the end of the house nearest the stable—though none had been taken from any of the other compartments. I selected block marked No. 1 from compartment No. 1, taking it from the course next below the lowest one then being used from. The blocks as stored are cut 22 x 30 inches, and the depth which the ice happens to have, which in most of the blocks examined was about 11 inches.

The block was taken out of doors and placed on a box where the entire outer surface was sawed off by a clean saw, leaving the block when ready for packing about 13 x 13 x 9 inches. This block was then wrapped in two and a half yards of clean unbleached muslin that I had boiled for 45 minutes and that was scalding hot when wrapped around the ice. The block was then wrapped in several thicknesses of clean, heavy manila wrapping paper and securely tied; it was then packed with block No. 2 in a wooden box large enough to allow a packing of clean excelsior all around the two blocks, at no place less than one inch thick, and in this condition the cover was securely nailed on and delivered by me to the American express company and consigned to Prof. Maurice Perkins, of Union college. Block No. 2 was taken from the compartment No. 2 and from the third course down from the top, no ice having been taken from that compartment. In each case the blocks were selected that had at least two tiers of blocks all around them, removing them by that distance from the nearest partition. Block No. 2 was treated precisely as No. 1. Both of the blocks were composed of very fairly clear ice. In block No. 1 there was visible after sawing off the outer surfaces an incipient fracture plane made visible by reflection of light, but apparently not reaching to the outer surface. In block No. 2 there appeared to be a plane of small bubbles, or more properly, a plane or layer of ice nearly an inch thick and about four inches from the upper surface after sawing, which layer had numerous lines of bubbles crossing the layer, all the bubbles of which diminished in size as they approached

one surface of the layer. Another layer much less definite appeared about three inches below the one just mentioned. All the bubbles were small, varying from the size of a clover seed down to mere specks. The ends of the lines of bubbles, especially the ends where the larger bubbles were, formed a very definite plane. The appearance of the layers of bubbles gave me the impression that either the act of freezing had been interrupted at the layer, or that the first ice formed had been overflowed and the overflowed water then frozen to the ice beneath it.

I beg to give herewith a copy of my instructions to the two gentlemen who were selected to make the examinations. In order that they might feel entirely independent in making their report, I gave them only the information contained in my letters to them, and so far as I know or believe, they have no idea as to the proprietary or local interests involved in the case, nor in fact that the two blocks do not represent entirely different sources. Every effort has been made to make the examination a thoroughly representative and impartial one, and solely to arrive at the truth as to the actual character of the ice as furnished to customers at Geneva.

I am, dear sir, very truly yours,

OLIN H. LANDRETH,
Consulting engineer

ROCHESTER, N. Y., *May* 17, 1899

MAURICE PERKINS, *Professor of Chemistry, Union College, Schenectady, N. Y.:*

My Dear Sir—There have been sent you to-day by American express two large blocks of ice, from which please select proper samples and make full chemical examinations of each, taking at least one sample from each block, and please allow Professor Stoller to take proper samples from each block for biological analyses. If you should think it proper to take more than one sample from each block, please take them at different depths, though the outer surfaces have been entirely removed by sawing and the blocks both wrapped in cloth sterilized by boiling for 45

minutes. I may state that the waters from which each block was cut are liable to overflow the ice during the winter from natural changes of level of the waters; that the ice from which both blocks were selected was cut and shipped by rail for some distance and stored where they were sampled, though probably at different times and stored in different places, though probably handled in substantially the same manner and generally exposed to substantially the same conditions. Please report on both blocks to Baxter T. Smelzer, secretary State Board of Health, referring to the blocks by the numbers on the paper wrappers, giving the results of your quantitative analyses, your general interpretation of those results as to probable suitability of the ices for domestic uses, and if you should find either or both ices polluted in any degree, your opinion whether such pollution probably belonged to the water whence the ice was formed or whether it might have occurred to the ice subsequent to cutting. If you need to know further facts concerning the conditions surrounding the ices represented by the samples sent you, please let me know and I will give you all needed facts in my possession.

While it is desirable that the expense of the examination should be kept down as reasonably as possible, the results of the examinations will be important and should not be allowed to suffer for want of the proper amount of work on the same.

I am, dear sir, very truly yours,

OLIN H. LANDRETH,
Consulting engineer

ROCHESTER, N. Y., *May* 17, 1899

Prof. JAMES H. STOLLER, *Professor of Biology, Union College, Schenectady, N. Y.:*

Dear Sir—I have to-day sent two large blocks of ice to Professor Perkins for chemical analyses and have requested that you be given opportunity to select samples from the same for bacteriological examinations. The entire outer surfaces of both blocks have been removed by sawing off slabs and the ice wrapped in cloth sterilized by boiling for 45 minutes. Please take

one sample at least from each block, and if you think best two from each block, the blocks being referred to by the numbers which appear on the paper wrappers. For purposes of comparison with some previous examinations it would be well to use gelatine cultures at 70 degrees F. An examination for colon and sewage bacteria will be desirable, otherwise a simple count of colonies is desired, though an approximate count of numbers of species without complete identification would add to the value of the examination.

Please report to Baxter T. Smelzer, secretary State Board of Health, the results of your examinations, together with a general statement as to your interpretation of your results with especial reference to the character of the ices for domestic uses. It may be proper to state that the ice represented by both blocks was cut at some distance from the places where stored since cutting, that they were both shipped in cars and stored in different places, and probably cut at different times, but transported and protected during shipment and storage in substantially the same manner as far as can be ascertained. The waters from which each ice was cut are liable to overflow the ice during the period of freezing by natural changes of level of the waters. Any further facts or circumstances you may require for proper understanding of the case will be furnished you. If you should find that either or both the specimens give biological indications of pollution, kindly indicate whether in your opinion the pollution probably occurred to the water from which the ice was formed or whether it might have occurred to the ice subsequent to cutting.

While it is desired that the expense of the examination shall be kept down as reasonably as possible, the results of the examinations will be important and should not be allowed to suffer for want of the proper amount of work on the same.

I am, dear sir, very truly yours,

OLIN H. LANDRETH,

Consulting engineer

SCHENECTADY, N. Y., *May* 30, 1899

Hon. BAXTER T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Sir—Having received a letter from Prof. Olin H. Landreth, dated May 17, stating that he had shipped two blocks of ice and requesting that I make a bacteriological analysis of the same, and report the results of the examination to you, I now beg to submit a report of my work, as follows:

The ice arrived at about noon, May 18, and I immediately procured two samples of ice from each block in the following manner: Immediately upon removing the covering from the top and sides of the block I chipped off by means of a sterilized ice chipper a quantity of ice from the block marked No. 1, choosing a side of the block lying at right angles to the larger faces, and judged to represent the thickness of the ice as formed. The chippings were allowed to fall upon the spread of the cloth covering which, as I had been informed, had been sterilized by boiling before being wrapped around the ice. The first chippings, amounting to a layer about one-fourth of an inch thick, were rejected. The next chippings were taken up by means of a sterilized spoon and transferred to a sterilized glass bottle. The block was then split in two and in a similar way a sample of ice was taken from near the middle of the block. By a similar procedure two samples of ice were taken from block No. 2.

The ice was allowed to stand in the bottles until melted, and cultures were then made from the water. Two gelatine plate cultures were made from each of the four samples, the gelatine employed being the usual medium for cultivating bacteria, and had been carefully prepared according to the standard formula. The results of the gelatine plate cultures, as showing the numbers of bacteria present in the ice, are as follows:

ICE BLOCK NO. 1

A. Sample taken near the surface of the block.

Number of bacteria per cubic centimeter of water..... 7,820

B. Sample taken near the middle of the block.

Number of bacteria per cubic centimeter of water..... 15,390

ICE BLOCK NO. 2

A. Sample taken near the surface of the block.

Number of bacteria per cubic centimeter of water..... 2,880

B. Sample taken near the middle of the block.

Number of bacteria per cubic centimeter of water..... 9,650

In each case the numbers given stand for an average of two tests from the same sample of water.

The same gelatine plate cultures also gave an indication of the variety of bacterial life, or numbers of species of bacteria in the ice. In the case of each sample the numbers of species, as indicated by the forms of growth of the colonies, the pigment products, etc., was large. There was a marked similarity in the general appearance presented by the growths of the bacteria in all the plates. The more common putrefactive bacteria, characterized by a rapid liquefaction of the gelatine, were absent.

In addition to the cultures in gelatine the fermentation tube test was employed, the usual glucose culture-broth being used. The results were:

BLOCK NO. 1

A. Sample from near surface..... Positive

B. Sample from near middle..... Positive

BLOCK NO. 2

A. Sample from near surface..... Negative

B. Sample from near middle..... Negative

The positive results being an indication that the common colon bacillus was present, I made further cultures from the infected broth and obtained results establishing the presence of *Bacillus coli commune* in the water derived from ice block No. 1.

INTERPRETATION OF THE ABOVE RESULTS

The numbers of bacteria present in the ice of both blocks is exceedingly large. In using this relative term I have in mind the results reached by similar tests of ice from other sources, and also tests of waters from rivers, lakes and wells. The variety

of bacterial life, as already stated, is large. I infer from these results that the water from which the ice was formed was polluted at the time the ice was formed. The fermentation tube test, and the qualitative tests of the germs developing in the broth, show that in the case of block No. 1 the pollution was due, at least in part, to sewage. Although the same test gave a negative result for block No. 2, I am yet of the opinion that this ice was polluted from sources not essentially different in kind from that affecting block No. 1. Besides the specific colon bacillus, characterized by generating gas in the fermentation tube, there are many other species of bacteria commonly present in feces. The identity in forms of growth, etc., of the colonies developed in the gelatine cultures from both blocks of ice, as well as the high numbers, both as to the total bacteria per cubic centimeter and the number of species, lead me to the conclusion that the ice of block No. 2, as well as that of block No. 1, is polluted by access of sewage. I am also influenced in reaching this conclusion by the resemblance of the predominant colonies to such as I have found by experience to develop in gelatine inoculated with water known to contain sewage.

I am requested in the letter above referred to to state my opinion as to whether the ice might have been polluted subsequent to cutting, it being mentioned that the ice, after cutting, was shipped some distance to the place of storage. The results above given may afford an indication bearing upon this point. It will be noted that the numbers of bacteria are higher in the samples taken at the middle of the blocks than in those taken at the surface. It seems probable that the contrary would be true had the ice been polluted after cutting by access of contaminating material from without. My opinion is that the bacteria were present in the water from which the ice was formed.

In reply to the further question as to "the character of the ices for domestic uses," I give my opinion that for any use involving the contact of the ice or mingling of the water derived from melting it with food or drinking water it is unfit for use.

I may add that in reaching the conclusions here given I am

guided only by the results of the analyses as above reported. I have been given no information in regard to the sources from which the blocks of ice were obtained or in regard to the conditions or qualities of the waters from which the ices were formed.

Respectfully submitted,

JAMES H. STOLLER

SCHENECTADY, N. Y., *June* 3, 1899

Hon. BAXTER T. SMELZER, M. D., *Secretary Board of Health of State of New York:*

My Dear Doctor—Enclosed please find my report of the chemical analysis of two specimens of ice submitted to me by Professor Landreth. The ice was carefully washed, the outside carefully scraped into clean wide-mouthed glass bottles. The inside was treated in the same way. Care was taken that the exposure to the air should be as short as possible. The bottles were quickly closed with glass stoppers, and the ice allowed to melt in a cool place. Thus the possibility of any deposition of moisture from the air with the melting ice was avoided. No water was taken for examination until all the ice was melted. The solids left on evaporation were of a light grey color, and on incineration gave the odor usual to vegetable matters. When the water had stood for some time little flocks separated. These were many of them so large that their outlines could be distinguished by the naked eye. Under the microscope they showed themselves to be the disintegrated forms of lower vegetable life. The residue left on incineration was, as I have noted, oxid of iron. This was probably the ash of crenothrix.

The quantity of solids was small. This is the case with ice, as most all of the soluble matters are separated by the freezing, and remain in the water. The same holds good in regard to the chlorids and nitrates.

The ice seems quite largely charged with organic residues.

It is easy to see, I think, how this occurs. The bottom of any piece of water is strewn with vegetable and animal debris.

These undergo decomposition with the evolution of marsh gas. This is insoluble in water, and the little globules fasten themselves to the particles, causing them to rise to the top of the water. If the surface is open the gas diffuses itself into the air, the organic rest is partly oxydized and sinks to the bottom to rise again and again until it completely disappears. In case the water is covered with ice, the particles accumulate on the under side, freezing in, and in fact accelerating the formation of the ice. The first formation of ice is quite rapid, and of course these particles will be distributed through a considerable space.

It often happens that during the freezing of the water there will be periods when this will cease, and perhaps some of the under part of the ice will melt away. The organic matter will increase and some gather from the melted ice. A cold snap will cause a rapid freezing, with the enveloping of all of it in one layer, and a consequent great local pollution. Thus you can see ice may act as a concentrator of pollution, and be more impure, volume by volume, than the mass of water from which it has separated. Pieces of ice from the same body of water may vary. That which has been formed over a spring will have the impurities brought up from the bottom and accumulate in it. Ice forming in a lake is more likely to be impure than that formed in a running stream, as in the latter case the fine particles are swept away by the moving water.

The ammonia and albuminoid ammonia in this ice all comes during the chemical action during the analysis. This is shown by the analysis of the water taken from the bottom of the bottles when the ammonia rises to .0345, and the albuminoid ammonia to .039 per 100,000.

Both of these specimens of ice came to hand in a good condition. The excelsior was hardly wet, and between it and the ice there was a clean piece of white cotton cloth.

It seems to me that in both of them there is too much of the ammonia compounds. It is held that more than .002 of albuminoid ammonia in 100,000 parts of ice is inadmissible. There does not seem to be much difference between the two specimens. The results are taken in the outside from two, and in that from

the inside from three analyses. In most cases 500 c. c. was taken for each.

In four analyses of ice made by myself, it having been taken from the Hudson river just below Albany, I found free ammonia .00184, .0027, .0017, .00132; albuminoid ammonia, .00428, .0040, .0030, .0040. You can see that neither of these two were as pure though the water of the Hudson river is a very bad one. An analysis of this year's ice from the Mohawk near here showed it to be much superior to either of these specimens.

Respectfully yours,

MAURICE PERKINS

CHEMICAL ANALYSIS OF ICE RECEIVED FROM PROFESSOR LANDRETH

CHEMICAL DEPARTMENT, UNION COLLEGE, *June* 3, 1899

"No. 1"

Clear free from "snow ice."

Solution clear with floating flocks of vegetable residues, of a light grey color.

A slight sweetish odor, not increased on heating. When evaporated to a small bulk by boiling, the filtered water became milky with matter which could not be filtered out.

Total solids	1.26
Loss on incineration	.56
Mineral residue	.7

This residue was mostly iron oxid probably the ash of the crenothrix, which could be detected in the sediment of the water, after the ice was melted.

Parts in 100,000.

Chlorine	.0754
Nitrites; none	.....
Nitrates; traces	.....
Nitrogen as free ammonia (outside)	.009
Nitrogen as albuminoid ammonia (outside)	.010
Nitrogen as free ammonia (inside)	.015
Nitrogen as albuminoid ammonia (inside)	.017
Required oxygen	3.4

"No. 2"

Same characteristics as No. 1.

Parts in 100,000.

Total solids	1.2
Loss on incineration	.7
Mineral residue	.5
Chlorine	.0754
Nitrites; none	.....
Nitrates; traces	.....
Nitrogen as free ammonia (outside)	.0074
Nitrogen as albuminoid ammonia (outside)	.0065
Nitrogen as free ammonia (inside)	.014
Nitrogen as albuminoid ammonia (inside)	.017
Oxygen required	3.65

SCHENECTADY, N. Y., *June* 28, 1899

BAXTER T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—Agreeable to your recent verbal instructions that I examine the reports of the several chemists and bacteriologists on the Keuka lake ice sold in Geneva, N. Y., collate the results of their analyses, and submit recommendations or conclusions as to the safety to the public using the ice for domestic purposes, I beg to submit the following report: The reports placed in my hands for examination comprise, (1) a bacteriological examination of the ice made by E M. Chamot, of Cornell university, dated March 1, 1899, on a block of the ice taken by Health officer Dr. Edwin R. Bishop, of Geneva, from the ice house of the Geneva ice company, at Geneva, selected and packed in the presence of the representative of the ice company. (2) A report of a chemical examination of a similar block of ice, similarly selected and packed by Dr. Bishop, and sent to Mr. Chamot and reported on by him under date of March 8, 1899. (3) A report by Dr. Wm. H. May, of Syracuse, dated April 24, 1899, on a biological examination of four samples of ice selected by Dr. Bishop from the ice houses of the Geneva ice company at

Geneva, selected and packed in the presence of the representative of the ice company. (4) A report on a chemical examination of four blocks of the ice made by Dr. T. E. Englehardt, of Syracuse, N. Y., in May, 1899, two blocks of which having been furnished to Dr. Englehardt by Dr. May and two blocks later by Dr. Bishop, the former two blocks having been identical with those sent to Dr. May and the latter two having been selected by Dr. Bishop from the ice-wagons of the Geneva ice company on the street in Geneva. (5) A report on a bacteriological examination of two blocks of ice by Prof. J. H. Stoller, of Union college, dated May 30, 1899, the blocks having been selected, packed and shipped by me from the ice houses of the Geneva ice company in Geneva, in the presence of representatives both of the ice company and the board of health of the city of Geneva. These blocks were shipped to Dr. Maurice Perkins, of Union college, but Professor Stoller was directed to select his own samples from the blocks. (6) A report on a chemical examination of these same two blocks of ice by Dr. Maurice Perkins, of Union college, dated June 3, 1899.

The several reports just mentioned, with my report of May 30, describe sufficiently the details of selection, packing and shipment of the samples of ice to the several analysts.

As the analysts have not followed just the same procedure, and have not all reported on just the same items in all cases, I have concluded that any attempt to tabulate their results would fail to properly represent some of the quantities reported, or if each were elaborated would render the table very complicated. I have thought it best therefore to present simply the conclusions of the several analysts as to the suitability of the ice in question for domestic use, and to submit the full reports as the best sources of information on which the several conclusions were formed. These conclusions of the gentlemen making the examinations are as follows:

E. M. Chamot says: "It would appear that the ice was formed on seriously polluted water or else that the locality is such that much polluting material could have been brought

thither by the wind while the ice was in process of formation. The chemical analysis shows gross pollution, and that the melted ice would form an excellent medium for the growth and rapid increase of any organisms which might find their way into the water. In the absence of data concerning the surroundings, etc., of this source of ice, I should venture to be on the safe side and consider the ice as very suspicious, if not to be actually condemned."—Report of May 8.

Dr. Wm. H. May says: "The ice is classed as low-grade ice, suitable for cold storage purposes, where it is not brought into contact with food and drink. It would be unsafe to put in drinking water or beverages."—Report of April 24.

Dr. T. E. Englehardt says: "It is evident that the ice submitted to me for examination is not pure enough to be used for purposes where it comes into *direct* contact with food and drink, but may be used for cooling purposes."—Report of May, 1899.

Prof. J. H. Stoller says: "I give my opinion that for any use involving the contact of the ice, or mingling of the water derived from melting it, with food or drinking water, it is unfit for use."—Report of May 30, 1899.

Prof. Maurice Perkins says: "It seems to me that in both of these samples (No. 1 and No. 2) there is too much of the ammonia compounds. It is held that more than 0.002 of albuminoid ammonia in 100,000 parts of ice is inadmissible."—Report of June 3, 1899.

In connection with what Dr. Perkins remarks as to the admissible limit of albuminoid ammonia in ice, the following list of determinations of this element by the several analysts is herewith given:

Analyst.	Albuminoid ammonia, parts per 100,000.
Chamot	0.027
Englehardt	0.010
Englehardt	0.015
Perkins	0.013
Perkins	0.012

As opposed to the findings of the analysts, the representatives of the Geneva ice company maintain that (1) Keuka lake is a body of remarkably pure water fed by springs and rocky streams well calculated to furnish water of high purity. (2) That the lake receives no sewage from any city, town, or village, and that the population on the drainage area is simply country population, with the exception of a few small villages. (3) That the village of Penn Yan takes its water supply from the lake very near where the ice was cut, and that when the new water supply was introduced into Penn Yan very decided improvement in the character of the water was felt as compared with the previous well water supply. (4) That the examination of ice should have been made at the spot where it was cut and not in the city of Geneva.

While the first three points tend to establish a good character for the body of water where the ice is reported to have been cut, it would appear that this general reputation would be entitled to less weight than the results of actual examination by disinterested analysts.

Concerning the fourth point, it is evident that as the ice had gone out of the lake when the first examination was made, it was not feasible to do as suggested, and that had it been so the locus of the ice under controversy is at Geneva and not at Keuka lake.

It appears conclusive to me therefore that under the circumstances there is no valid reason for setting aside the findings or conclusions of the analysts, and that a due regard to the safety of the public health at Geneva would call for the exclusion of the ice in question for domestic use where it might come into contact with food or drink.

I am, dear sir, very truly yours,

OLIN H. LANDRETH

GENEVA, N. Y., *July* 11, 1899

The State Board of Health, Albany, N. Y.:

Gentlemen—Referring to your letter of June 15 last, in which you said that this board would be notified promptly of

the decision of the State Board regarding the analysis of certain samples of ice from Geneva, I beg to state that no report has been received from you, and you are respectfully requested to send it at the earliest possible moment.

Yours truly,

EDWIN R. BISHOP

ALBANY, *July* 19, 1899

EDWIN R. BISHOP, M. D., *Health officer, Geneva, N. Y.:*

Dear Sir—In compliance with a resolution adopted at a meeting of this Board held June 30, 1899, I transmit herewith copies of reports made by Prof. J. H. Stoller and Prof. Maurice Perkins upon the analyses (bacteriological and chemical, respectively) of samples of ice taken from ice houses in the city of Geneva by Prof. Olin H. Landreth about May 17, 1899.

Very respectfully,

BAXTER T. SMELZER,

Secretary

TOWN OF AURELIUS.

Pea vine nuisance

AUBURN, N. Y., *June* 5, 1899

B. T. SMELZER, *Secretary State Board of Health:*

Dear Sir—On Tuesday, June 20, 1899, I was notified by one James W. Mullen of the town of Aurelius, N. Y., that he had leased a piece of ground just north of my residence to the Hemingway canning factory of this city upon which to dump the refuse from their factory. I objected on the ground that it would be very offensive and injurious to the health of the people in that vicinity. I then went to the factory people and entered my protest and was told that we were no better to stand it than

the people near the factory should it be dumped there. That it should be put here. This is just outside the city limits and they draw it about three-fourths of a mile to get it here. There has been put in the pile since Tuesday noon of this week about 250 tons. Mr. Mullen, who has contracted with the Hemingways, is a justice of the peace of this town, and accordingly is a member of the health board. The supervisor is a cousin of Mullen's wife; and another justice is a stepfather to the supervisor; and one other of the board, I am told, received his appointment through Mullen's influence.

I made complaint to the town board. It met on June 21 and decided that the health officer, Dr. Whitbeck, should write to you for instructions, which he did. The board met again today. Dr. Whitbeck read your communication and the law referred to therein and stated to the board that he thought that the Hemingways had no right to put it there; that it is very disagreeable and endangers the health of the people. Mr. Mullen took the side of the Hemingways, and sufficient of the members went with him to render the within decision. Mr. Mullen made the statement to a party that he did not care for the people, but that it was the dollars that he was after; that the Hemingways had paid him lots of money and they should dump there if they desired.

I have stated the case to Dr. Smith, of Syracuse, who is a member of your Board, and he assured me that quick justice should be had if the town board should not do their duty. I write you thus fully that you may more readily understand the situation.

Find within letter from Dr. Brown, who is a health officer of the city of Auburn, and a doctor of very high standing. Also a letter from Dr. Creveling, who is one of the State Board of medical examiners.

Will you kindly send a member of your Board to make examination at the earliest possible moment?

Respectfully yours,

J. H. YOUNG

TOWN OF AURELIUS, *June* 24, 1899

A complaint having been made to the board of health of the town of Aurelius on June 20, 1899, that a nuisance is maintained by H. C. Hemingway & co., upon lands leased and occupied by them, owned by Carrie C. Mullen, of the town of Aurelius.

Said board of health did convene and examine said premises and alleged nuisance on the 21st day of June, 1899, and on the 24th day of June again made another examination of the said premises, and at a meeting held in the town of Aurelius on the 24th day of June did decide and declare in their opinion that no nuisance did exist on said premises on either dates of their examination over which this board of health has jurisdiction.

THOS. P. WILEY,
Secretary

AUBURN, N. Y., *June* 23, 1899

F. W. SMITH:

Dear Doctor—I this afternoon inspected a pile of refuse from a canning factory in this city that had been removed near the home of one of my patients. The stuff emits a bad, offensive odor and in my opinion is unhealthy and detrimental to all persons living near it. It seems to me to be a case for the State Board.

Very respectfully,
J. P. CREVELING

AUBURN, N. Y., *June* 24, 1899

BAXTER T. SMELZER, *Albany, N. Y.:*

My Dear Doctor—Permit me to call your attention to a dangerous nuisance just over the line of this city in the town of Aurelius. It consists of a pile of pea vines from the canning factory located in the city. Decomposition is already well advanced. I have called the attention of the town board to the matter and that body refuses to act. This is only the beginning, as the canning company will dump hundreds of tons of this garbage there during the next two months. This matter should be

attended to at once. Our board here being without jurisdiction and the town board there refusing to act, I must ask the State Board to give the matter its immediate attention.

Yours truly,

A. H. BROWN

CAYUGA, N. Y., *June* 22, 1899

Secretary of State Board of Health:

Dear Sir—The canning company of Auburn, N. Y., are drawing and putting in large stocks of pea pods (green) in a vacant lot just outside the city limits in the town of Aurelius. Complaint has been made to the board of health of Aurelius. These pods are drawn there to decay and be used as a fertilizer. There is a very offensive odor emanating from this pile. The stack in heap is about 50 feet long, eight or 10 feet high and 15 to 20 wide, and is being increased by 20 to 30 loads per day.

This pile is situated about 30 to 35 rods from the street and about the same distance from several houses.

This pile is certainly a nuisance and later will be much worse. What I wish to know, is it a nuisance so far as the Board of Health is concerned?

The canning company say not, and defy us. Please advise us by return mail.

This case I think is sort of a test case in this matter, and if you think advisable send a member of the State Board to look into the matter.

Please give me as complete instructions as possible.

Sincerely yours,

J. H. WITBECK, M. D.,

Health officer Cayuga and Aurelius, N. Y.

ALBANY, *June* 26, 1899

THOMAS WILEY, *Secretary Board of Health, Town of Aurelius, Aurelius, N. Y.:*

Dear Sir—I am in receipt of a communication from J. H. Young, of Auburn, N. Y., in which he encloses a copy of the proceedings of the board of health of the town of Aurelius, in the

matter of a complaint made to them concerning the disposition being made of pea pods by the Hemingway canning factory.

In a communication received from your health officer, Dr. J. H. Witbeck, it would appear that the complaints against the canning company are well founded, and it is not understood how your board can decide that no nuisance exists, as certainly a stack of pea vines alleged to be 50 feet long, eight or 10 feet high and from 15 to 20 feet wide, added to by 20 to 30 loads a day and left to decay, cannot help but be a nuisance, and it is certainly the duty of your board to require the Hemingway canning company to cause its abatement.

A failure on the part of your board to act in the matter will necessitate this Board taking advantage of the provisions of section 25 of the Public health law, which states as follows:

" * * * Whenever the state board of health or its president and secretary shall by notice to the presiding officer of any local board of health, request him to convene such local board to take certain definite proceedings concerning which the state board of health or its president and secretary shall be satisfied that the action recommended by them is necessary for the public good, and is within the jurisdiction of such board of health, such presiding officer shall convene such local board, which shall take the action recommended."

Very respectfully,
BAXTER T. SMELZER,
Secretary

B. T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

My Dear Doctor—In the matter of an alleged nuisance in the town of Aurelius, near the city of Auburn, N. Y., caused by the piling together of a large mass of pea vines, pods, etc., refuse from a canning factory known as the Hemingway canning factory, doing business in the city of Auburn, concerning which I have been ordered to investigate, I beg leave to report:

On July 5, I visited and inspected the Hemingway canning factory, also the place where the refuse from said factory is dumped or piled at this time, said refuse consisting of green pea vines and pods. The vines are cut by the farmer and delivered to the canning factory, pods, vines and altogether, and the peas are removed or thrashed by machinery, the vines are then drawn about one mile distant from the factory, just outside the city limits and there piled in a large heap about 40 rods back from the road.

The pile now is about 60 feet long, 25 to 30 feet wide, and about 12 or 15 high, and is being added to each day to the extent of about 20 to 30 loads of vines.

The mass becomes very hot and emits quite an offensive odor in the process of heating and decomposition, which odor will of course continue until the process of heating or fermentation is complete.

If the factory is allowed to continue dumping their refuse here throughout the season, which will consist of refuse from tomatoes, corn and other vegetables, the offensive odors arising from the dump, are likely to become more offensive than at present.

Within a radius of from 40 to 60 rods from the dump are located at least half a dozen of houses. I visited some of these families and questioned them regarding the odors arising from the pea vine pile, and they were quite unanimous in stating that at certain times when the wind was in certain directions the odor from the pile was very offensive, causing in some instances nausea and loss of appetite, and requiring others to keep their doors and windows closed.

I offer the following suggestion regarding the disposition of the refuse from this factory, which I believe if followed out will prevent further cause of complaint which otherwise will continue from year to year or during the operation of the factory:

Under the present arrangement, the factory is obliged to pay for the removal of the vines, and it would seem to me expedient for them to pay each farmer bringing a load of peas a small sum

for the removal of a load of thrashed vines, which he could return to his farm, spread thinly upon the ground and would thereby result in no nuisance or cause for complaint from any source.

The same procedure should be followed out regarding other refuse. It should be drawn to a place more remote from habitation than at present and spread thinly upon the ground where it would soon dry without undergoing the process of heating or fermentation.

I can see no way of removing the objectionable features of the present mass of vines, except by covering it with earth.

Respectfully submitted,

F. W. SMITH

ALBANY, *July* 12, 1899

Messrs. H. C. HEMINGWAY & Co., *Auburn, N. Y.:*

Gentlemen—The attention of this Board having been called by Dr. J. H. Whitbeck, J. H. Young and others to an alleged nuisance in the town of Aurelius, caused by pea vines and other refuse from your factory being deposited in that town in large quantities and left to decay, Dr. F. W. Smith, a member of this Board, was designated to investigate the complaints received.

Dr. Smith having made his report a copy is herewith enclosed for your information.

In view of the report made by Dr. Smith, it is advised that you take steps to cause the removal of the existing nuisance, and that in the future each day's accumulation be cared for in a sanitary manner, the suggestion being made that future accumulations either be removed to a point remote from any buildings, or that they be cremated.

It is understood that there are systems of cremation whereby the refuse from your factory could be dried and used as a fuel, in addition to which sufficient steam could be generated from the crematory for use in your canning factory.

The present manner of disposal of the waste product of your plant being in violation of the provisions of the Public health

law, we feel sure that you will take such steps as are necessary to remedy existing unsanitary conditions, and as suggested above, care for each day's accumulation, as this Board does not desire to take advantage of the power vested in it under section 25 of the law, a copy of which we have sent to you.

Very respectfully,

T. A. STUART,
Assistant secretary

ACETIC ACID WORKS, NORTH TONAWANDA

ALBANY, *August* 18, 1899

B. T. SMELZER, *Secretary State Board of Health of New York, Albany, N. Y.:*

Dear Sir—In conformity with your instructions I visited North Tonawanda on the 16th and 17th instants, and made an inspection of the acetic acid works in that place, regarded as a nuisance by the local board of health, and inquired into the matter generally. In company with the health officer, Dr. F. W. Bentley, and William Allen, president, and F. W. Robertson, member of the board, I visited the works which are operated by Peuchen & co., as I was informed. They are located near the northern boundary and more than two miles from the business portion of the city, in a sparsely settled region.

Concerning these works two complaints are made: First, that the gases and vapors emanating from the factory are offensive, deleterious to health and destructive to vegetation, and, second, that the drainage from the works into Sawyer's creek in the immediate vicinity, pollutes the stream, causes a deposit upon its bed and along its banks, and gives rise to offensive odors. It would appear that a petition, signed by a number of tax-paying residents in the vicinity has been presented to the board of health, asking that relief be afforded them from the nuisances complained of, and that the board, through its secretary, has

notified the company that their works as operated constituted a nuisance, and has requested them to take such action as might be necessary to remedy the evil, but that no substantial relief has yet been afforded. A chief complainant is Eugene De Kleinst, whose organ manufactory is in close proximity to the works, and whose residence is some 300 yards, or thereabouts, distant from them. I talked with him, and with several of his employees, both men and women, and they agreed in asserting that the odors arising from the works are exceedingly irritating and highly offensive, and that, in certain conditions of the wind and states of the atmosphere, doors and windows must be kept closed in an effort to exclude them, and that, as a result, they suffer great inconvenience and distress. Mr. De Kleinst states that at times it is impossible for him and his family to sit upon their piazza with any comfort, and that at night he frequently has to close the windows in his sleeping apartments. It is also alleged that when the wind is favorable the odors can be observed in the business portion of the city, and in Martinsville, a section of the city a mile or thereabouts distant from the works, but I am not inclined to think that at such distances they can be very annoying. Within a radius of half a mile there are few dwellings, and no very large number of people are, in my opinion, affected by the exhalations, but this fact has little, if any, bearing upon the question at issue, for if the comfort and health of even a small number of residents are affected they are entitled to relief.

In my opinion the chief difficulty lies in the gaseous emanations from the works. Details as to the processes employed were not given me, but I understand that acetate of lime is employed which is distilled with sulphuric acid in retorts, the acetic acid thus set free being condensed and purified by re-distillation. During this process more or less sulphurous acid gas is liberated, and acrid fumes are evolved, the more particularly, I think, when the retorts are charged and drawn. These fumes pervade the works, and they are irritating and suffocating. They may be plainly noticed in the vicinity, and are doubtless carried, as

claimed, to a considerable distance. In my opinion this discharge of acrid and irritating gases into the atmosphere constitutes a nuisance in the vicinity which should be remedied or abated. Just how this should be accomplished I do not undertake to say, nor do I deem it the duty of the local board of health to recommend a plan and assume any responsibility in the event of its not proving successful. But I am clearly of opinion that relief should be afforded and that the company should be required so to operate their works as not to endanger the health or lives of the neighboring residents.

The pollution of the stream is, I think, a matter of secondary importance at present. The company discharge their waste water, which has at times contained some petroleum, into a ditch that runs some 500 feet or thereabouts by the side of the tracks of the New York Central railroad, and then discharges into Sawyer's creek, a sluggish stream which enters into the Erie canal near Martinsville. Whether Peuchen & co. are entirely responsible for the foul condition of this stream in the immediate vicinity I do not undertake to say, but any sluggish stream situated as this is is likely to become polluted and offensive, and while the deposits in this creek are foul, and the water nasty and ill-smelling, I do not think it adds very materially to the odors complained of. Peuchen & co. claim that their discharges no longer pollute it, and, while it might be cleaned out with advantage to all concerned, it would be no easy matter to secure a proper flow and natural purification of the water, at least in dry seasons of the year, and present conditions would not appear to warrant a large outlay in this direction.

I would therefore recommend that the local board of health of the city of North Tonawanda order the abatement of the nuisance complained of and above referred to, to wit: The discharge of acrid, irritating, offensive and deleterious gases and vapors into the atmosphere, and take such steps as may be necessary to secure compliance with such order, and that no action be taken in the matter of the pollution of the stream unless it

should appear that offensive matter is hereafter discharged into the same in any considerable quantity. It may not be possible to operate such works as these and have them *entirely* inoffensive to the residents in the immediate neighborhood, and such manufacturing concerns, when situated in a sparsely settled region, should not be hampered by unnecessary restrictions, but I am convinced that in this instance the company may materially improve the existing conditions, without hardship, by the exercise of greater care in the conduct of their works, and that it is clearly their duty to adopt such methods as will accomplish this end and afford the desired relief to those who now suffer from the evils complained of.

Respectfully submitted,
WILLIS G. TUCKER,
Director

ALBANY, *August* 18, 1899

F. W. BENTLEY, M. D., *Health officer, North Tonawanda, N. Y.:*

Dear Sir—I transmit herewith, for the information of your board, a copy of the report made by Prof. W. G. Tucker upon his investigation of a complaint concerning an alleged nuisance caused by the acetic acid works operated by Peuchen & co. at North Tonawanda.

Very respectfully,
BAXTER T. SMELZER,
Secretary

WEST CANADA CREEK.

To the State Board of Health of the State of New York:

You are hereby notified that conditions exist at the village of Herkimer, N. Y., which affect the security of life and health in that locality and are likely to cause disease, especially epidemics; that the conditions are caused by the escape of the water from the West Canada creek, a stream forming the east-

erly boundary of said village, and its overflowing a portion of the village.

That thereby there are more than 100 dwellings in said village, the cellars of which contain a depth of water from one inch to five feet therein, and many of the lots on which the dwellings stand are, or have been within two weeks, submerged, so that boats have been resorted to as a means of egress and ingress; that the water has collected in stagnant pools in such cellars and lots to such an extent as to cause disease or sickness to the inhabitants of the said village of Herkimer and that in said village are dwellings surrounded by water, with water in the cellars thereof, in which dwellings are cases of scarlet fever reported to the health officer of the sanitary district in which the village of Herkimer is.

That the West Canada creek, where it forms the eastern boundary of the village of Herkimer, is shallow and the fall in said creek from the northeasterly portion of the village of Herkimer to its confluence with the Mohawk river is slight, and the stream is so shallow that when the ice has broken up the stream has not sufficient current to carry it to the river and the ice forms a barrier in the stream, which turns the water upon the adjacent lands and causes it to overflow a portion of said village and endanger the life and health of its inhabitants.

That when the Erie canal was deepened and improved in the vicinity of the village of Herkimer during the winter of 1897 and 1898 quantities of earth were removed from the canal and thrown into the Mohawk river, making that stream more shallow and thereby lessening the capacity thereof for carrying away the water of the West Canada creek.

That the conditions above described are nuisances or questions affecting the security of life and health in the village of Herkimer and ought to be declared public nuisances by the Governor of the state of New York and changed, abated or removed.

Wherefore the boards of health of the combined sanitary and registration district of the town of Herkimer and the village of Herkimer request and petition your honorable body to take

and that the cause of such overflow can be overcome if proper means are provided therefor, therefore be it

Resolved, That the board of health of the village of Herkimer petition and request and hereby does petition and request Hon. James D. Feeeter, state senator, and Hon. Erwin E. Kelley, member of assembly from Herkimer county, to introduce into the two houses of the Legislature of the state of New York a bill to provide for relief from the state in removing the cause of such overflow and to remedy the present unsanitary conditions at Herkimer, the bill to carry an appropriation of sufficient amount to pay for the work necessary to be performed and that they use their best efforts to obtain the passage of such a bill.

COUNTY OF HERKIMER, VILLAGE OF HERKIMER,
OFFICE OF THE SECRETARY OF THE
VILLAGE BOARD OF HEALTH. } *ss.:*

I, Edward Small, secretary of the board of health of the village of Herkimer, do hereby certify that I have compared the foregoing copy of resolution with the original resolution duly adopted at a regular meeting of the board of health of the village of Herkimer held in the said village on the 27th day of January, 1899, and that the same is a true copy of the said original resolution and of the whole thereof.

Witness my hand this 27th day of January, 1899,

EDWARD SMALL,

Secretary of the board of health of the village of Herkimer

ALBANY, *February* 1, 1899

Prof. OLIN H. LANDRETH, *Consulting Engineer, State Board of Health, Schenectady, N. Y.:*

Dear Sir—I enclose herewith a copy of a complaint received at this office concerning unsanitary conditions existing in the village of Herkimer, alleged to be caused by the overflow of West Canada creek.

It is directed that you proceed to the village of Herkimer for the purpose of investigating the complaint made, reporting the result to this Board.

In making your investigation it is suggested, if the conditions claimed are found to exist, that you consider the question as to whether or not the work of deepening the canal at that point is responsible for the conditions claimed.

It is expected that a meeting of the Board will be held in this city during the early part of the month, and if you could make the investigation within a few days in the event of your written report not being ready you could submit a verbal report.

Very respectfully,
BAXTER T. SMELZER,
Secretary

SCHENECTADY, N. Y., *February* 20, 1899

BAXTER T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—Agreeable to your instructions of the 1st instant, to investigate the unsanitary conditions at the village of Herkimer, due to an ice gorge in the West Canada creek, and also the question whether, if found to exist, those conditions are due in any measure to the work of deepening the Erie canal at that point, I beg leave to submit the following report:

I visited the village of Herkimer on the 3d instant, calling on Dr. Cyrus Kay, health officer. In company with President Prescott, George H. Bunce, member of the board of health, and village engineer C. O. Wood I examined the creek causing the trouble, the territory submerged and the mouth of the creek at the river as well as the bank of the canal where work on the canal improvements was carried out during the winter of 1897-8. The facts needed to understand the case are as follows: Early in January, 1899, a general rain lasting for about two days caused the ice in the West Canada creek to break up, ultimately for many miles upstream, but at first only the lower part of the creek was cleared. After the first ice was broken up and running freely, with the river at the mouth also running free from ice, a small ice jam occurred in the shallow water *on* the bar caused by the debris from the creek at its confluence with the river channel; this jam did not pile up at this point, but, the creek being rather narrow and tor-

next the southwest bank, through which there is a strong current, it is hardly probable that the transported material, if rolling along the bottom of the channel, would rise to the bar along its side, nor if deposited from suspension would do so by passing upstream from the river channel to the creek bar across which a current is always flowing to the river channel.

From these reasons and the absence of proof that the bar has been raised by material deposited in the river from the canal excavation, it seems very improbable that such action has taken place, and therefore I am of the opinion that there is no reasonable ground for considering the canal work responsible for the conditions found to exist.

I am, dear sir, very truly yours,

OLIN H. LANDRETH,

Consulting engineer

SCHENECTADY, N. Y., *February* 23, 1899

BAXTER T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—In the matter of the Herkimer ice jam, I beg to write you that I have to-day received the enclosed several affidavits of persons who claim to have knowledge that the river has been changed during the past two years. I also send enclosed a copy of the letter sent by me to the health officer, Dr. Cyrus Kay, asking for whatever evidence his authorities might have. The affidavits should have been received before this, as they appear to have been completed on the 13th instant.

While I do not think that this evidence is conclusive, it may call for further careful investigation by soundings and sampling of the material of the bar. I did not interpret my instructions, especially the verbal ones, as calling for such an amount of investigation as seems necessary to establish the facts, and it would appear to be proper for the village to assume the burden of such inquiry.

I am, dear sir, very truly yours,

OLIN H. LANDRETH,

Consulting engineer

SCHENECTADY, N. Y., *February* 4, 1899

Dr. CYRUS KAY, *Health officer, Herkimer, N. Y.:*

Dear Sir—I beg to return herewith Dr. Smelzer's letter to you of the 17th of January, which I unintentionally brought away with me.

After making the tour of the village I found it necessary to take the 4:15 train to Utica to look for evidence of the change in the river bar in the office of the United States deep waterway survey there. This will explain my failure to call on you again before leaving. You had not come in at 4:10 when I left. I asked Mr. Prescott to have prepared and sent to me for use in my report a sketch map of the gorge and the portion of the village affected thereby. I explained what was desired to Mr. Wood. I will need this very soon as I wish to make my report early next week in time for the coming meeting of the State Board of Health.

It seems that the claim that the state is responsible for the present gorge is rather weak at the point of showing that a change has actually occurred in the bar during the past year. If you have further evidence on this point it should be made available. This evidence, either positive or negative, could be secured by a thorough investigation, but I have not considered my instructions as warranting this without authority from, and at the expense of, the village authorities.

I am, dear sir, very truly yours,

OLIN H. LANDRETH

STATE OF NEW YORK, } *ss.:*
COUNTY OF HERKIMER, }

Albert Coleman, William Canady and Anthony Aberline, being duly severally sworn each for himself says, that he is a resident of the village of Herkimer, and that he is familiar and has been for a number of years, with the conditions of the Mohawk river and the West Canada creek at said village, and has observed in former years the conditions of the channels of said streams and the depth and flow of water therein, and has also observed the same during the summer and fall of 1898.

That each of them have heard the affidavit of James T. Devins, verified February 13, 1899, read and know the contents thereof, and they are each able to and hereby do for themselves verify the statements thereof in respect to the conditions of the channel of said river and the flow of the waters thereof since said excavations from the Erie canal were thrown into said river as stated in said affidavit.

And each for himself says, that since said excavations from the canal were thrown into said river he has observed that the channel thereof along the southeasterly bounds of said village and opposite the mouth of said creek has become filled in to a large extent, and the waters and flow of said river greatly impeded and interfered with, and the channel thereof greatly narrowed, and as each of them verily believes to the extent and as fully described in the affidavit of Mr. Devins.

The affiants herein each also verifies said affidavit of Mr. Devins for himself as to the extent to which the excavations from said canal were thrown upon said tow-path embankment and into said river; as also the effect it had upon the waters of said river and creek.

ALBERT COLEMAN
WILLIAM CANADY
ANTHONY ABERLINE

Severally subscribed and sworn to before me this 13th day of February, 1899,

C. L. EARL, JR.,
Notary public

STATE OF NEW YORK, } *ss.:*
COUNTY OF HERKIMER, }

Peter M. Smith, Thomas G. Perry and Matthew H. Devins, being duly sworn, severally say, that they are residents of the village of Herkimer in the county and state aforesaid, and have been for more than fifteen years last past; that they are and for all of that time have been well acquainted with the conditions of the Mohawk river and West Canada creek at said village; that said river flows along the corporate bounds of said village from a westerly to an easterly direction, and the said creek bounds said village on the easterly and flows into said river at

the southeasterly corner of said village and substantially at right angles to said river.

That they have heard the affidavit of James T. Devins, verified February 13, 1899, read, and know the contents thereof; and that they each have made during the past season personal observations of the condition of the channel of the Mohawk river at the places mentioned in said affidavit, and they are each able to and hereby do verify the statements thereof in that respect.

That prior to 1898 they had each visited said river and creek, and fished therein and worked near the banks thereof at the places aforesaid, and observed generally the conditions of the channel and the flow of the waters both of said river and of said creek.

That since the excavations from the Erie canal were thrown and dumped over the northerly bank of said tow-path and into said river they have observed that the channel of said river and the flow of the waters thereof have been greatly impeded and interfered with, and particularly so opposite the mouth of said creek and below the place where said creek flows into said river.

That they have observed that a bar of dirt and filling had accumulated on the southerly side of the channel of said river and opposite the mouth of said creek and the channel of said river greatly interfered with and impeded thereby, and as more fully stated in the said affidavit of Mr. Devins hereinabove referred to.

Deponents further say that the excavations taken from the said canal as aforesaid and dumped over the embankment of the tow-path consisted, as deponents verily believe, of many thousand loads or tons of earth and stone and debris.

Deponents also verify the said affidavit of Mr. Devins as to the extent and distance along said river that such earth and stone and debris were dumped or deposited.

PETER M. SMITH
THOMAS G. PERRY
MATTHEW DEVINS

Severally subscribed and sworn to before me this 13th day of February, 1899, as to Perry & Devins,

C. L. EARL, JR.,
Notary public

STATE OF NEW YORK, } ss.:
COUNTY OF HERKIMER, }

James T. Devins, being duly sworn, says, he resides at Herkimer, N. Y., and is upwards of twenty-five years of age; that for about twenty-three years he has resided on the easterly side of South Washington street in Herkimer aforesaid, and has for many years been well acquainted with the condition of the Mohawk river and its channel and banks in the said village of Herkimer; that during said time his residence has been very near to said river.

That deponent is also well acquainted with the condition of the West Canada creek within said village and has been for a good many years.

Deponent further says that southeasterly from deponent's house the West Canada creek flows nearly at right angles into said Mohawk river.

That heretofore and during the winter and spring of 1898 large quantities of dirt were taken out of the bottom and sides of the Erie canal on the southerly of said river as it passes along the southerly boundaries of the said village of Herkimer; that at said place the said canal and river are substantially parallel and flow from a westerly to an easterly direction, and the only intervening space, ground and embankment between the said canal and river is that as covered and made by the tow-path itself; that said canal is much higher than the said river and the bank of the towpath to the north and next to said river is and has been for many years very steep and abrupt; that as deponent is informed and verily believes upwards of two feet of earth and debris was taken from the bottom of said canal, as also accumulations from the sides, and were thrown and dumped over upon the northerly side of said tow-path and embankment and into said river; that such excavations were so thrown over and dumped upon said embankment and into said river, as deponent is informed and believes, by order and under the direction of the authorities of the state of New York; that such dirt was thrown into said river as aforesaid for a distance, as deponent verily

believes, of about three-quarters of a mile from a point opposite the mouth of the West Canada creek westerly and up the stream of the Mohawk river; that dirt and debris from the canal as aforesaid were also thrown into said river as aforesaid for a distance, as deponent verily believes, equally as great as that to the westerly and up the stream.

Deponent further says that during the past summer and fall he observed the effect of the dumping of said dirt and accumulations upon said northerly bank of the tow-path and into said river as aforesaid upon the flow of waters and the current of said river and creek, and that he observed that the channel of said river was greatly narrowed and the flow of the water thereof impeded and interfered with, and that a bar was formed at or near the mouth of said West Canada creek and in said river which interfered with the flow of the waters both of said creek and of said river.

That as an illustration thereof deponent has observed that the sewer pipes which conduct the sewage from the village of Herkimer into said river at a point about one-quarter of a mile westerly from the influx of said creek into said river, and that in former summer seasons the said pipes were plainly exposed to view and a large portion of them were out of water, that is, upwards of one foot, and half of them being out of water, but that during the past summer season and since said dirt was thrown into said river as aforesaid, the season being equally dry as that of some former seasons, yet the said sewer pipes were submerged, as deponent verily believes, caused by the interference with said channel and waters as aforesaid whereby the same were caused to set back.

That deponent as a further illustration of his observation further avers that a child was drowned in the hydraulic at Herkimer during about the early fall of 1898, and it being presumed that the body had been carried thence into the river deponent was engaged in searching for the body of such child and observed that in the channel of said river at a point opposite the mouth of said creek where the channel in former seasons had

been extremely deep, that there was an accumulation of filling thereat to such an extent that the water was only about between two and three feet in depth.

And deponent further says, that it is his best judgment from his observation as aforesaid that the channel of said river had been narrowed by such filling and dirt and accumulations, for a distance of upwards of twenty rods opposite and easterly from the mouth of said creek that said channel had been reduced to a width of not but a little over twenty feet, whereas it was formerly, as deponent verily believes and now recollects, of the width of from forty to fifty feet.

JAMES T. DEVINS

Sworn to before me this 13th day of February, 1899.

C. L. EARL, JR.,

Notary public

STATE OF NEW YORK, } *ss.:*
COUNTY OF HERKIMER, }

Joseph W. Smith, being duly sworn, says that he resides in the village of Herkimer, N. Y., that he has been familiar with the Mohawk river where the West Canada creek empties into said river and for several miles above and below that point for at least thirty years; that he has fished in said river every year for at least thirty years last past using a boat for that purpose; that until recently the waters of the Mohawk river at the mouth of the said West Canada creek were from fifty to seventy-five feet wide and the depth of the water for a considerable part of said width was from eight to eleven feet.

Deponent fished in the Mohawk river during the past summer and fall (1898) a number of times, and on these occasions rowed in a boat down the Mohawk river passed the mouth of the West Canada creek, and on these occasions he observed a very material change in the condition of said river near the mouth of said creek and above and below the mouth thereof.

Deponent observed that a large quantity of earth and stones had been thrown or had fallen down the tow-path of the Erie canal into the Mohawk river.

This earth and dirt had been thrown out of the Erie canal when it was deepened in the winter of 1898.

Deponent also observed that the channel of the Mohawk river opposite the mouth of the West Canada creek was only about twenty or twenty-five feet wide and only from three to seven feet deep, and that the narrowing of the width of the stream and the decrease in its depth at this point appeared to have been caused in a large part by the dirt and stones thrown out of the Erie canal as aforesaid.

In all the years that deponent has rowed up and down said river as aforesaid he has never known the channel of said river to be so narrow and the waters thereof to be so shallow at the mouth of said West Canada creek and for some distance above and below the mouth of said creek as during the summer and fall of the year 1898.

JOSEPH W. SMITH

Sworn to before me this 13th day of February, 1899.

C. L. EARL, JR.,
Notary public

TOWN OF EAST GREENBUSH, RIVERSIDE AVENUE

SCHENECTADY, N. Y., *December* 30, 1899

Dr. S. C. CURRAN, *Health officer of the town of East Greenbush, N. Y.:*

Dear Sir—I beg to submit my report on the matter of the defective drainage and sewerage of the portion of Riverside avenue and adjacent streets which lie outside the corporate limits of the city of Rensselaer, which was referred to me by you some time ago.

In company with you and several members of your town board of health I examined the locality under consideration on August 14 and again alone on receipt of your list of the properties concerned on October 28.

The trouble I found to consist in the discharge of sewage and garbage from the residences on the east side of Riverside avenue adjacent to the city of Rensselaer, into the basin and on the eastern bank of the basin formed by that portion of the river cut off by the construction of the New York state dyke along the east side of the navigation channel of the Hudson river at this point. The discharge of sewage and garbage at this place and in the manner found to exist certainly constitutes a sanitary nuisance and conditions which are clearly a menace to the health of the community. The only questions that call for careful consideration are: How shall the nuisance be abated, and who is responsible for its abatement? The latter question involves not only the identity of the parties and the agencies which produce the unsanitary conditions, but also the ownership of the lands on which the nuisance exists. The agencies which produce the unsanitary conditions are (1) the discharge of sewage and garbage by the residents of Riverside avenue; (2) the absence of a current and the tidal ebb and flow of the water of the basin. Were the discharge directly into the river having a continuous strong current sufficient to carry away the refuse matter discharged, the results would be less objectionable than at present under the conditions as they exist. Two matters were referred to me by your board: (1) The feasibility of a sewer along Riverside avenue intercepting the individual sewers from the residences on both Riverside avenue and also a sewer from Belmont place, which sewers some 15 residences on that street, this sewer to have a grade so as to flow from both north and south toward the lowest point along Riverside avenue, thence to enter the river channel. (2) The propriety of calling on the state to fill the basin above ordinary tide level and the particular department or bureau to which to apply for such remedy if found to be a proper one.

As both these matters involve legal questions, I recommended to your board that these legal questions should be submitted to an attorney for consideration; this recommendation being

approved by your board the following three questions were submitted to Clarence E. Akin, attorney, of Troy, N. Y., together with a description of the conditions and circumstances of the case:

(1) Has the board of health of the town of East Greenbush authority to designate the particular kind of remedy which the lot owners must follow in abating the nuisances?

(2) Does the land within the tidal basin belong to the owners of the properties fronting on this basin, or to the state?

(3) The destroying of the current by the construction of the dyke and the tidal ebb and flow being elements in the creation of the nuisance, can the state of New York be called on, without new legislation, to abate the unsanitary conditions so far as they are due to the existence of the basin, either by filling up the same or by opening another inlet at the upper end to secure circulation of fresh water, or by other means?

After looking carefully into the matter, Mr. Akin returned the following opinion on the matters submitted to him:

SCHENECTADY, N. Y., *October* 24, 1899

CLARENCE E. AKIN, *Attorney, Troy, N. Y.:*

My Dear Sir—I am just in receipt of a letter from the health officer of the town of East Greenbush sending me the information concerning the individual properties on the east side of Riverside avenue, East Greenbush, just south of the city line of Rensselaer. Just across the street from these properties and on the east bank of a basin or arm of the Hudson river certain unsanitary conditions exist, produced by the discharge of sewage and house waste from some of the properties mentioned. The bank in question was originally the east bank of the Hudson, as I am informed, but by the building of a dyke parallel with the river some hundred feet or more west of this east bank by the state of New York for the purpose of improving the navigation of the river, this bank on the west side of the street is no longer a bank of the river proper but simply the easterly

bank of a long narrow basin in which the tide ebbs and flows through an inlet cut through the dyke. The nuisance complained of exists not only on the east bank of the basin but along the low land at the northern end of the basin and also in the basin itself, being caused by the alternate tidal flooding and exposure of the banks and beds of the basin strewn with sewage and garbage.

The board of health of the town of East Greenbush have laid the matter before the State Board and it has by them been referred to me for investigation and report. I find an unsanitary condition of things, but am not prepared to recommend in detail the remedy to be followed without securing legal advice, which is the occasion of the reference of certain questions to you. These question are, first, has the health officer of the town of East Greenbush authority to designate the particular kind of remedy which the lot owners must follow in abating the nuisances? This question is pertinent because the local board of health desire the lot owners to build a sewer along Riverside avenue intercepting all the individual sewers and discharging the same into the river in a manner not to be objectionable. It seems to me that this is a matter exceeding their authority and that all they can do is to order the lot owners to abate the nuisances but leave to them the particular method of abatement. Second, does the land within the tidal basin belong to the owners of the properties fronting on this basin, some of whose titles read, I am informed, to the center of the river, others, the high-water mark of the river, and others, to the channel of the river; or does the land in this tidal basin belong to the state of New York? Third, the tidal ebb and flow being an element in the matter, can the state be called on without new legislation to abate the unsanitary conditions so far as they are due to the existence of the basin, either by filling up the same or by opening another inlet at the upper end to secure the circulation of fresh water or by other means?

As explained to you by telephone, I am authorized to engage legal advice on these three questions at a cost not to exceed $15.

I send you enclosed the names of the property owners and street number and other information such as is sent me concerning drainage and sewerage from the respective properties.

Very truly yours,

OLIN H. LANDRETH,

Consulting engineer

Street number	Riverside avenue Owner	Has lot a sewer to river?	Does drain carry sewage or slop?
8	George Low	Yes.	Sewage.
9	Charles J. Reno	Yes.	Sewage.
11	Frank Cornelius	No.	Two families wash water.
11½	Frank Cornelius	No.	Two families wash water.
10	Daughters of Revolution	No.	Vacant.
12	T. McKee, Estate of	No.	Sewage.
13	Frank Cornelius	No.	Wash water.
14	Oscar Hilt	No.	Wash water.
15	John T. Sape	No.	Wash water.
16	— Smith	No.	Wash water.
17	Mrs. James Miller	Yes.	Wash water.
18	Mrs. J. Baggs	Yes.	Sewage.
19	Mrs. Alonzo Sliter	No.	Sewage.
20	— Graves	No.	Wash water.
21	Mrs. Wilson	No.	Wash water.
22	Clark Alexander	Yes.	Sewage.
24	Mrs. Alonzo Sliter	No.	Sewage.
25	Mrs. Stephen Mink	No.	Wash water.
26	John A. Palmer	No.	Wash water.
27	George Past	No.	Sewage.
28	Mayells, Estate of	No.	Wash water.
29	T. J. Van Alstyne	No.	Sewage
30	Mrs. S. A. Fritts	No.	Wash water.
31	Mrs. S. A. Fritts	No.	Sewage.
.....	Carner Estate	.....	Vacant lot.
32	John Lemley	No.	Sewage.
34	T. J. Van Alstyne	No.	Wash water.
	Vacant lots	.....	
	Hudson River aniline and color works	No.	Two drains.
	Mrs. J. T. Johnson	No.	Sewage.
	Jacob Wald	No. 2 bldgs.	Wash water.
	Horatio Moulds	No.	Wash water.

There are 15 houses on Belmore place which drain into a sewer which empties onto the bank; 12 of these buildings are owned by John F. Lake and two by Clark Alexander. The other one, owner unknown.

TROY, N. Y., *December* 28, 1899

Prof. O. H. LANDRETH, *Schenectady, N. Y.:*

Dear Sir—I have examined the questions submitted to me in regard to the alleged nuisance existing along the Hudson river in the town of East Greenbush, Rensselaer county, N. Y.

It appears that the private sewers of several property owners along the Hudson river just south of the city of Rensselaer empty into a basin formed by the building by the state of a dyke parallel to the river and some hundred feet west of the east bank thereof. This basin was formerly part of the river bed and now opens at its southerly end into the river. The tide ebbing and flowing therein distributes the refuse from the sewers along its banks and during low water creates conditions dangerous to public health and amounting in fact to a nuisance.

The questions submitted were, first, has the health officer of the town of East Greenbush authority to designate the particular kind of remedy which the lot owners must follow in abating the nuisances? Second, does the land within the tidal basin belong to the owners of the property fronting on the basin? Third, can the state be called on without new legislation to abate the unsanitary conditions so far as they are due to the existence of the basin?

In reply I would say, first, the local board of health has no power to order the particular method which must be followed in abating the nuisance. Its power is derived solely from the statute and it must act entirely within its provisions. It may declare that the drainage of the sewers into this basin constitutes or creates a nuisance and it may order its abatement. In case of neglect or refusal of the property owners to comply with the order it may enforce it by action which it this case would be by injunction. The particular method, however, of abatment may be chosen by the property owners.

Second, in regard to the ownership of the land within the basin; it is the property of the state of New York. The property of the Hudson river is in the state and the building of the dyke did not invest the state of its title to the land covered by the basin, particularly as the tide ebbs and flows therein. The precise question of ownership is discussed and decided in "The People vs. Canal appraisers, 33 N. Y. R. 461, etc."

Third, the State Board of Health, like the local board, must act entirely within the powers conferred upon it by statute. In this case the authority under which it can act must be found if

anywhere in section 6 of the Public health law. That section confers upon the Board the powers to make examinations into nuisances or questions affecting the security of life and health in any locality. When required to do so by the Governor it shall make such examination and shall report to him. The report when approved by the Governor is filed in the office of the secretary of state "and the Governor may declare the matters public nuisances, which may be found and certified in any such report to be nuisances, and may order them changed abated or removed as he may direct." From this language taken alone it appears that the Governor might have power to direct the abatement of a nuisance in a case like this provided there was a fund from which the expense could be paid and a proper officer to enforce his order. I fail, however, to find any case reported where the Governor has taken such action, and the concluding language of the said section implies that this power of the Governor is only to be exercised in cases where nuisances exist upon property other than state property, and then the county officials may be directed to execute the order of the Governor at the expense of the municipality where the nuisance occurs and the expense could be recovered by the municipality from the persons maintaining or assisting in the maintenance of the nuisance. This construction of the section is borne out by the fact that the Legislature by section number 7 of said Public health law directs the method of abating a nuisance caused in any way from the waters of the canals of the state, which would be entirely unnecessary if action could be taken by the Governor or the State Board under the preceding section. It seems to have been the intent of the Legislature not to empower the Board of Health or the Governor with authority to abate nuisances upon state lands which might require the expenditure of immense sums of money.

In my opinion, therefore, additional legislation is necessary to abate the condition found to exist in the basin of the Hudson river above referred to.

Very truly yours,

CLARENCE E. AKIN

After consideration of the matter and of the opinion of Mr. Akin, I beg to make the following recommendations:

First—That your local board of health declare the discharge of sewage and the throwing of garbage into the basin and onto the banks of the basin to be a nuisance. And that each resident contributing to the cause or maintenance of the nuisance be ordered to abate the same.

Second—That the residents of the Riverside avenue be *advised* to abate the sewage nuisance by constructing a sewer along the avenue, and that your board of health recommend to the residents, if they desire it, the essential features of such a sewer as your board would consider to meet the requirements of the case, especially as to location, depth, diameter, grades, house connections, etc.

Third—That no action be taken at present toward securing state action in the matter of abating the present conditions, but that if, after the removal of the sewage from the basin, its condition still remains unsanitary and stagnant, action be taken to secure from the state such changes in the basin by either filling up or the placing of sluice-gates at opposite ends of the basin to hasten silting-up, or other plan as shall remove the undesirable conditions.

I append hereto the list of residents along Riverside avenue having sewers emptying into the basin, which list you furnished me and which was submitted to Mr. Akin.

I am, dear sir, very truly yours,

OLIN H. LANDRETH,
Consulting engineer

CITY OF LOCKPORT

Eighteen Mile creek

LOCKPORT, N. Y., *April* 10, 1899

Secretary State Board of Health, Albany, N. Y.:

Dear Sir—Eighteen Mile creek, a small stream of water, runs from the southern part of this city to and under our mill, continuing north under the Erie canal to Lake Ontario. Originally it was a stream of pure water, but of late years the city of Lockport has been discharging a large amount of sewage into this stream, polluting the water to an extent of making the atmosphere in and about our premises here, continually unhealthy, and much of the time almost unbearable. This is true especially in the summer time, when the creek is naturally very low. The sewage at such times is about as bad as you can imagine. The city undertook some years ago to cover this creek with masonry work, and succeeded in doing so to a considerable distance; but for a distance of about 500 feet before entering our premises, and from this point north, the creek is left entirely uncovered. We believe that the interests of the health of the community in this vicinity (and especially of those in our employ and of ourselves) demand that this dangerous nuisance be abated. Several times during the past three years we have complained of this nuisance to the local board of health, the mayor and the board of aldermen. At such times they have frequently removed many of the obstructions in the bed of the creek, and limed the banks of the same. This cleaning process was very good for a short time only. To do more than this they claimed to be powerless. It seems to us in the first place that the city has no legal right to pollute this stream of water. We do not desire to cause the city any unnecessary trouble, but we feel compelled, in the name of common decency, to require, if it is

within our power to do so, that this nuisance be abated, either by the city discontinuing to throw their sewage into this creek, or by their acquiring a title to the premises, and continuing the covering to the creek from the point where it is now covered, in all exposed places in this vicinity.

We are manufactures of health flour and breakfast food. Our product is of that nature that it is easily tainted, and this fact makes it necessary for us to use further care in this particular instance.

Will you please investigate the matter, and thus, if you can, help us to overcome the difficulty, and thus very much oblige,

Yours very truly,
FRANKLIN MILLS COMPANY,
CHAS. E. DICKINSON,
President

SCHENECTADY, N. Y., *June* 29, 1899

BAXTER T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—I beg to submit the following report of my examination into the matter of a complaint concerning the pollution of a stream in the city of Lockport, N. Y., submitted to the State Board of Health by Charles E. Dickinson, president of the Franklin Mill company, dated April 10, 1899. Preliminary instruction to investigate the matter was received May 1, final instructions on May 16, and the examination at Lockport was made on May 18.

The stream in question is the east branch of Eighteen Mile creek, which rises three or four miles east of Lockport and flows through the city in a westerly and northwesterly direction, passing under the Erie canal and into Eighteen Mile creek within the city limits and soon after passing the Franklin mill. The stream has a gentle fall until it reaches Chestnut street; from this point to Garden street the stream runs down a deep ravine and has a heavy fall and receives a large amount of gravel and debris from the steep sides of the ravine.

Partly to protect it from this accession of debris and partly to enable the upper part of the ravine to be graded, the stream has been covered by a stone arch resting on vertical side wall from a point about 100 feet southeast of East avenue to the north line of Union street, being the southern boundary of the N. Y. C. & H. R. R. R. property. From this point to the Erie canal the stream is open, except that it flows under the Franklin mill.

On reaching Lockport, I called on Hon. Calvin Z. Sutliff, president of the board of health, and also mayor of the city, and with him arranged for an inspection of the stream in company with representatives of the board of health and Mr. Dickinson.

My examination shows the stream to be in a very foul condition from Pound street and especially from Walnut street to the canal. The bed and bank of the stream are strewn with garbage and the water is reeking with sewage. In response to a request made to the city officials for a map of the locality and some specified data, Charles A. Cornes, city engineer, has furnished me the accompanying map of the territory concerned, and after making a count of the connections writes as follows:

"I enclose herewith print showing territory inside of city limits draining into east branch of the Eighteen Mile creek, on this system there are 131 bath and closet connections and 125 drain connections of which we have record, we estimate that besides the above there are about 100 more house connections without bath and closet."

The only thorough remedy for the decidedly unsanitary and intolerable condition of the creek is to make other and better provision for the disposal of the garbage and sewage from this district. The next best remedy, and probably the one which the citizens will consider most feasible would be to convert the stream through the city into a trunk sewer, building a new sewer along the portion of the stream now open, and rebuilding or lining such parts of the covered portions of the stream as may be necessary to furnish a tight and smooth channel. As the stream has a heavy fall there would always be a strong upstream

circulation of air whenever the temperature inside the sewer is above that of the outer air, and in order to protect the upper part of the district from the escape of noxious emanations care should be exercised that no opportunity occur for accumulation or detention of solid matter passing through the sewer, and that sewers entering the trunk be tapped and that ventilating man holes be placed where the escape of air from them will be least objectionable.

I did not examine Eighteen Mile creek below the city and do not know whether the continuation of this east branch as a sewer is likely to be objectionable or injurious to the territory below the city, but was informed that it would not. If this can be verified, I beg to recommend that the city authorities be directed to make the improvements described, unless they are prepared to carry out the better remedy of removing both sewage and garbage from the creek altogether and to make other and better provision for it.

I am, dear sir, very truly yours,

OLIN H. LANDRETH,
Consulting engineer

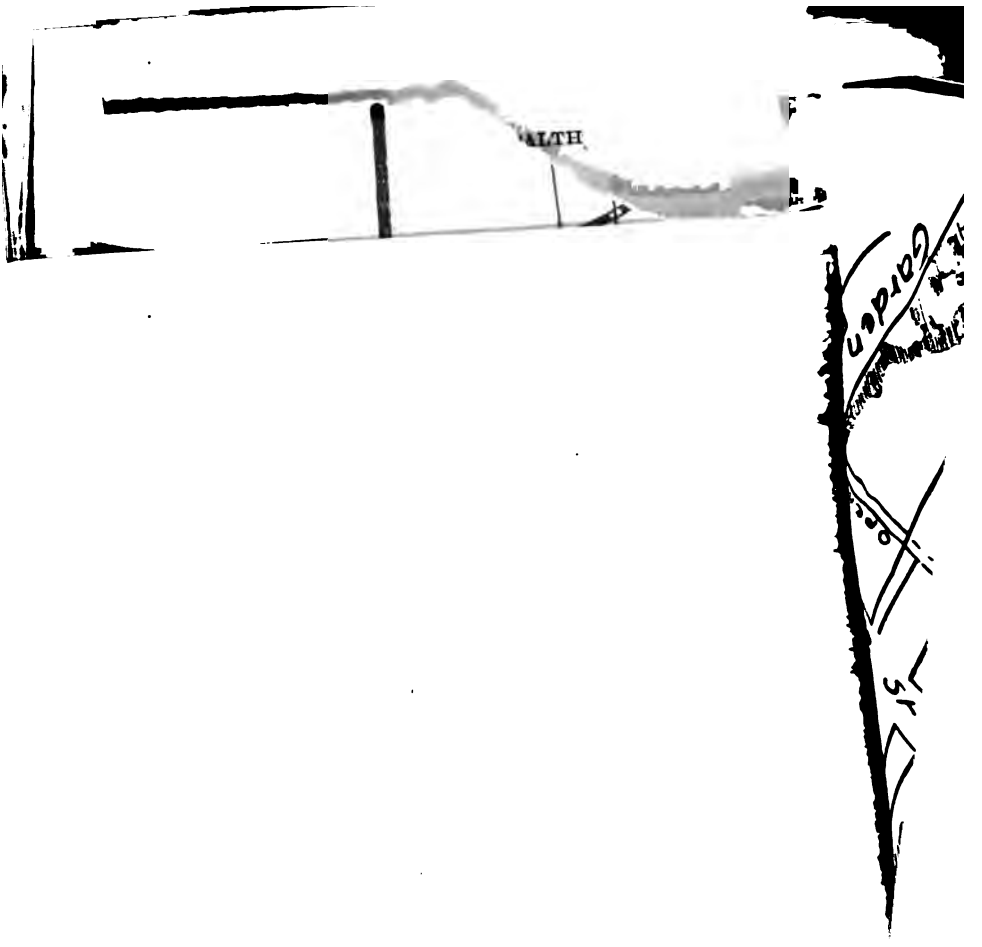
ALBANY, N. Y., *July* 19, 1899

Hon. CALVIN Z. SUTLIFF, *Mayor of the City of Lockport, Lockport, N. Y.:*

Dear Sir—I transmit herewith a copy of a report made to this Board by Prof. Olin H. Landreth upon his investigation of a complaint made by Chas. E. Dickinson concerning a nuisance caused by the unsanitary condition of the Eighteen Mile creek.

The report of Professor Landreth was accepted and the recommendations contained therein adopted by the Board, at a meeting held June 30, 1899, and it is directed that the city of Lockport take steps to abate the nuisance found to exist.

Very respectfully,
BAXTER T. SMELZER,
Secretary


ALTH
Garden

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TILDEN FOUNDATIONS.

VILLAGE OF STOTTVILLE

STOTTVILLE, N. Y., *July* 20, 1899

To the Secretary of the State Board of Health, Albany, N. Y.:

Dear Doctor—You are hereby requested to send us a sanitary engineer to advise local health board how best to abate nuisance in the village of Stottville consisting of a polluted stream passing through portions of said village and which local board do not feel competent to remedy. The municipality of Stockport to bear all expense.

E. E. MARTIN, M. D.,
Health officer

ALBANY, N. Y., *July* 20, 1899

OLIN H. LANDRETH, *Consulting Engineer State Board of Health, Schenectady, N. Y.:*

Dear Sir—We are in receipt of a request from the board of health of the town of Stockport for the services of a sanitary engineer of this Board to investigate as to certain nuisances at Stottville in that town, and to advise them as to the best means to adopt in order to cause their abatement.

The health officer, Dr. E. E. Martin, has been informed that you would be designated for the service required, with the understanding that the municipality of Stockport will assume the payment of your account for services and expenses.

It is requested that you communicate with Dr. Martin at Stottville, informing him as to the earliest time during the coming week that you can take up the work, in order that he may meet you at the Stockport station.

Very respectfully,
T. A. STUART,
Assistant secretary

ALBANY, N. Y., *November* 17, 1899

E. E. MARTIN, M. D., *Health officer, Stottville, N. Y.:*

Dear Sir—In further reply to your communication of the 14th instant, it is advised that the board of health of the town of Stockport proceed to comply with the recommendations contained in the report made by Professor Landreth, a copy of which is herewith enclosed.

Very respectfully,
BAXTER T. SMELZER,
Secretary

GRIFFINS CORNERS

MARGARETVILLE, N. Y., *August* 8, 1899

State Board of Health, Albany, N. Y.:

Gentlemen—At a meeting of the town board of health of the town of Middletown, Delaware county, N. Y., I was directed to communicate with your board in relation to having a member of your Board, in company with the health officer of this board, visit the village of Griffins Corners, N. Y., to investigate the system of sewerage, etc. Every year they have several cases of typhoid fever in that community and if the question of sewerage is not the trouble, determine what is. So kindly let me know if you can send a member and what date.

Yours respectively,
GEO. E. GLADSTONE,
Secretary Middletown board of health

ALBANY, N. Y., *August* 10, 1899

GEO. E. GLADSTONE, *Secretary Board of Health, Town of Middletown, Margaretville, N. Y.:*

Dear Sir—I am in receipt of your communication of the 8th instant, stating that the board of health of the town of Middletown desire the services of a representative of this Board, to investigate and advise in connection with certain supposed unsanitary conditions in the village of Griffins Corners.

In reply you are informed that C. W. Adams, of Utica, N. Y., one of the consulting engineers of this Board, has been directed to visit Griffins Corners for the purpose of making the desired investigation.

Very respectfully,
BAXTER T. SMELZER,
Secretary

ALBANY, N. Y., *August* 10, 1899

C. W. ADAMS, *Consulting Engineer, State Board of Health, Utica, N. Y.:*

Dear Sir—I enclose herewith copy of a communication received from the board of health of the town of Middletown, Delaware county, N. Y., requesting the services of a representative of this Board for the purpose of investigating and advising with the local health authorities in connection with the sewer system of the village of Griffins Corners in that town.

You are requested to make the desired investigation at the expense of this Board.

Dr. L. W. Reed is the health officer; his address is Margaretville, N. Y.

Very respectfully,
BAXTER T. SMELZER,
Secretary

UTICA, N. Y., *August* 28, 1899

The Honorable State Board of Health:

On the 10th day of August your Secretary, Hon. B. T. Smelzer, sent me the following appeal of the local board of health of the town of Middletown, Delaware county, to the State Board of Health for its advice and assistance:

"MARGARETVILLE, N. Y., *August* 8, 1899

"State Board of Health, Albany, N. Y.:

"Gentlemen—At a meeting of the town board of health of the town of Middletown, Delaware county, N. Y., I was directed to

communicate with your Board in relation to having a member of your Board, in company with the health officer of this board, visit the village of Griffins Corners, N. Y., to investigate the system of sewerage, etc. Every year they have several cases of typhoid fever in that community, and if the question of sewerage is not the trouble determine what it is; so kindly let me hear if you can send a member and what date.

"Yours respectfully,

"GEO. E. GLADSTONE,

"*Secretary Middletown board of health*"

The secretary requested me to make the necessary examinations, and I have the honor to submit thereon this report:

Arrangements were made and on the 16th day of August the president of the local board of health of Middletown, Lewis Tway, Dewitt Griffin and others of the board, and the health officer, Dr. Reed, met me at Griffins Corners.

From our conversation and later investigation I found these facts: Griffins Corners and Fleischmans are two hamlets situated in the easterly part of Delaware county, town of Middletown, on the Ulster and Delaware railroad, quite near the summit grade of that railroad and upon the upper westerly slopes of the Catskill mountains, at an elevation of about 1600 to 1700 feet above tide.

The villages are practically one and are not incorporated, hence the laws are administered by the local board of health of the town. The perennial population of the two villages is about 250, while for two or three months each summer its numbers are swelled to perhaps 3000 people, who live in their own villas and cottages, or board at the hotel and at the homes of the native residents. The accompanying sketch map shows that the dwellings, stores and hotels are located on both sides of the Bushkill, a branch of the Delaware river, and stretch along its banks easterly and westerly about one mile. The valley of the river presents the usual phases of the Catskill mountain valleys—narrow flat lands bordering the streams; the mountain slopes beginning to ascend but a short distance away from the stream

at any point; the grade of the stream and valley is quite steep. Bluestone rock prevails on the slopes, and their broken and disintegrated pieces make up the creek bed and the subsoil of the bottoms. The Bushkill is at this season only a brook, its flow gathered in very short "still waters," thence zigzagging from side to side of the creek bed. In the spring and occasionally in midsummer the stream flows with torrent speed and force between full banks, and the people depend upon these floods to wash out the creek bed and carry away the summer's accumulation of sewage, which directly or indirectly all reaches the creek; much of it was raw sewage from the hotels and houses, and from privy deposits. Fleischmans is a newer settlement than Griffins Corners, and many of its dwellings are provided with the ordinary cesspool, while in Griffins Corners only two or three cesspools have been built and they are of recent construction, made by simply digging a hole in the ground and walling up the sides with dry loose stones.

From the observed character of the material composing the flat land and the lower parts of the slopes, it is plain the water percolates freely through the subsoil. This is confirmed by statements made that on excavating for the cesspools almost anywhere, or for other purposes, ground water is encountered at the height of the water in the creek nearby.

The water supply for the villages is furnished by a private company. Its source is wholly from mountain springs, gathered into a covered reservoir of 200,000 gallons capacity, located a half mile southeasterly from the village and 200 to 300 feet higher elevation and on the mountain side. The water is distributed by gravity through six-inch and four-inch cast iron water pipe, laid in the two or three streets of the villages and accessible to all dwellings, public and private, except for a distance of say 1500 feet in the lower part of Main street, where the mountain slope approaches so closely to the creek that but little available room is found for dwellings, and the few houses located along this stretch of street are supplied by their own private springs.

The statement was made by the members of the health board that only a few wells for drinking water were in use. I did not confirm it by actual count, but the information given me by A. H. Todd, the village plumber and steamfitter, as to the consumption of public water, would indicate that one-third of the dwellings in the two villages must be supplied by water by some source other than the public supply. In view of the fact that Fleischmans is the newer settlement and most of its dwellings are modern, it is probable that the well water consumption is largely in Griffins Corners.

Mr. Todd's statistics of the public water consumption shows that there are 65 taps in the water mains, 84 families supplied, 5 boarding-houses supplied, 3 hotels supplied, 4 stores supplied, and 7 other buildings supplied.

He puts the consumption of public water at about 45,000 gallons in 24 hours, and in addition allows 15,000 gallons for street sprinkling.

What troubles the town board of health is the fact that in reeent years each autumn several cases of typhoid fever develop. Dr. Ward Keator, living in Griffins Corners, states there have been 41 cases of typhoid fever in the last five years and we located all of them, as shown on the map, within a limit of 1200 feet distance, measuring along the main street, beginning with a case in a dwelling near Kelley's saw mill on the east (marked B) and the extreme westerly case (marked A on the map).

This is the thickly settled part of the village, and the river bed is close to the highway. A number of the privies overhang the river banks, the deposits lying on the dry bed of the stream. Some of the buildings have so little room that the kitchen waste-pipes discharge from the overhanging dwellings directly onto the bed of the stream; some other buildings have their sewer pipes carrying sewage from household and stores discharging onto the shale and gravel of the stream's bed. These are nuisances in plain sight.

But the one particularly offensive nuisance is found at or begins at the point of discharge of the outlet sewer from the Hotel Switzerland. This is a large summer hotel in the upper

part of the village, close to the stream, where its banks are high and steep and heavily shaded. The deposits of raw sewage from this hotel, with the soil pipe discharge from 200 people, cover half the creek bed near the point of discharge and extend a considerable distance down stream. The elevation of this point of the stream is certainly higher than the water in any well used for drinking by the families occupying the houses where the typhoid cases developed. The subsoil is known to be porous; the site of this raw sewage discharge is so close to these dwellings and the wells that may be used, that organic matter in the sewage could readily be carried by the percolating water from the stream into the wells before it could be reduced by bacteria.

It is apparent, too, that any disease germs that may be in the sewage from the hotel, or from that discharged by pipes from the dwellings; or in the fecal matter deposited from the overhanging privies, nearly all of it lying exposed on the shale and gravel forming the bed of the stream, could readily be carried by the house flies into the nearby dwellings and onto the food.

I do not know that the public water supply has been frequently analyzed if at all, but it is asserted by all with whom I talked to be pure and wholesome, and my examination of the locality where the water is collected from the springs and impounded, failed to reveal any signs of contamination.

The situation demands a change. The first remedy suggested by the natural topographic conditions is to build sewers in the two principal streets, and lead them in one outlet pipe laid in the highway which is the continuation of the main street down the valley far enough for its discharge to be at a distance from any dwellings liable to be built with the growth of the villages.

The longer the outlet sewer, in reason, the better for the treatment of the sewage it discharges by the method growing in vogue, which is:

THE SEPTIC TANK TREATMENT

The tank could be so located as to discharge the effluent sewage either directly into the stream, or onto small filter beds for further purification if desired.

The septic tank would need to be properly designed, giving it dimensions conforming to the supply of sewage. It would require no attendants; no power plant; only once in a season the accumulated sludge would need removing by a pump. And for this amount of sewage a contractor's pump like the Baldwisville pump would be ample.

The cost of such disposal works is small per million gallons of sewage treated, and its operation and maintenance almost nothing.

This septic tank method of sewage disposal is really that of an enlarged and improved cesspool, made water tight and excluding as much air and light as possible.

The raw sewage is broken down or reduced by the sedimentation of the inorganic matter, and the organic matter is attacked by the anaerobic bacteria. If the sewage is received into the tank in a proper manner, retained long enough for the bacteria to work on it—but not too long—and the effluent is discharged by the proper means, it is no longer an offensive addition to the flow of even a small stream. But further purification is had by filtration of the effluent either by its discharge upon an area of natural filtering soil, or prepared beds.

The preceding plan of removing the sewage from the villages and its disposal is simple, inexpensive and effective.

Its application to the villages of Griffins Corners and Fleischmans would be well advised, if the villages were incorporated.

The Public health law is definite in its provisions for enforcing a sewage system upon an incorporated village. The local board of health could compel its construction, even in the absence of a sewer commission. (See article 2, section 21, Public health law.)

But these villages are not incorporated. Their people are under the jurisdiction of the town board of health in all public health matters. (See section 21, defining the duties of the local board.) It says: "Every such local board shall make and publish from time to time all such orders and regulations as they may deem necessary and proper for the preservation of life and

alth, and the execution and enforcement of the public health the municipality. It shall make *without publication* thereof, h orders and regulations for the suppression of nuisances, l concerning all other matters in its judgment detrimental to public health in *special* or *individual* cases, not of general plication.

* * * It may employ such persons as shall be necessary enable it to carry into effect its orders and regulations and their compensation." Under the general powers, the local ard could publish an order reciting that it deems it necessary r the preservation of life and health of the municipality, that sewage matters and household waste containing organic tter produced within certain defined area of the town shall, er a certain further date, be disposed of only through prop- ly constructed sewers, and the sewage thus gathered shall be scharged only after definite treatment for its purification.

Such an order could be carried out by the people affected *only concerted action.* It is improbable that such concerted action ould ensue and the board would be under the necessity of xecuting its own order.

The cost of doing so would be the cost of providing the sewer stem defined and the house drains and connections. Its col- tion is provided for by section 30 of article 2 of the Public ealth law and it would be a town charge.

The property owners not within the area of the town sewered would vigorously protest against incurring such an expense, and he board would probably heed the protest.

If the whole matter be treated in the light of "nuisances naintained," and the board undertook to proceed under the ections of the law providing for the removal of nuisances, then t is at once apparent how utterly impractical it would be to lefine a regulation or order looking to the removal of individual uisances by the medium of the proposed sewers and septic ank. For instance it would be manifestly impractical and un- air for the board to say to the owners of the Hotel Switzerland, to Mr. Lasher of the village tavern: "You are maintaining

a nuisance in your present method of disposing of the sewage matter you make and must remove it by building a sewer from your premises down through the main street a mile and a half. You must also purify your sewage by means of a septic tank before discharging it into the Bushkill." It is plainly impractical as the thing involves the same concerted action of all the property owners.

But something must be done and the local board wants the recommendation of the State Board as to what it shall be, that the thing done may be accepted by the people as the best under the circumstances. In view of all of the conditions, I conclude that this action should be taken and it is recommended:

First—That the local board of health shall declare it a nuisance detrimental to the public health, the continued discharge of raw sewage or other organic wastes, into the stream or onto the dry bed of the Bushkill or its branches, within the town of Middletown, Delaware county, N. Y.

Second—The local board shall by proper resolution direct that prior to the 1st day of July, 1900, each hotel, store, shop, and dwelling in Griffins Corners and Fleischmans shall be provided with a cesspool for the reception of its sewage matter or other organic wastes, including fecal matter from water-closets. Each cesspool to be so constructed as to be water tight, covered so as to exclude the light and open air, and to be of the proper dimensions and form as to its inlet and outlet pipes. The effluent from the cesspool to be discharged where practicable, onto the land through shallow tile and stone drains, or into a pit with loose stone dry walls permitting its seepage or filtration through the subsoil before reaching the stream.

Third—The local board shall cause a copy of the resolution or order to be served as provided by law upon the owners of every such hotel, store, shop and dwelling.

Fourth—The local board shall order by proper resolution, that in the interest of the public health, each and every well, the water in which is used for drinking or domestic purposes, shall be filled up and destroyed, where it is located so as to be pos-



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sibly contaminated by sewage or seepage from privies. The board to cause the proper notice to be served on the owners of the premises containing such wells.

It would be effective in securing action if the State Board should take the step provided by the last sentence of section 25, article 2, of the Public health law, which in brief authorizes the State Board to direct the local board to take certain definite proceedings.

It is believed that if these recommendations be carried out in an intelligent manner, the Bushkill would be restored as a pure mountain stream; increased consumption of the wholesome public water supply instead of polluted water from the wells; a general use of the modern water-closet, and a disappearance of the annually recurring cases of typhoid fever.

There can be no question about it but that the construction of a public sewer system as outlined herein would be better and cost less than the general use of the cesspools proposed. If the municipal conditions permitted, such a sewer system should be the only remedy to suggest or advise.

Very respectfully submitted,

CAMPBELL W. ADAMS,

Consulting engineer

TOWN OF SCHODACK

IN THE MATTER OF LEWIS M. SELKIRK AND OTHERS VERSUS NEW YORK CENTRAL AND HUDSON RIVER RAILROAD COMPANY, NUISANCE IN TOWN OF SCHODACK, BEFORE THE NEW YORK STATE BOARD OF HEALTH.

To the Honorable Gentlemen of the State Board of Health:

This case referred to relates to a nuisance maintained by the said railroad company in the town of Schodack, in the form of a shallow pond of water opposite the residence of Lewis M. Sel-

dack Landing station, so as to abate the nuisance complained of.

In regard to the filling up of the middle pool, however, we find that there is a free circulation through the culvert between the basin and the river, and the conditions complained of would exist regardless of the railroad, due to washings from barnyards and decaying vegetable matter.

Trusting this will be satifactory, I remain,

Yours very truly,

W. J. WILGUS,

Engineer of maintenance of way

ALBANY, N. Y., *June* 27, 1899

C. W. ADAMS, *Utica, N. Y.:*

Dear Sir—I enclose herewith for investigation by you copy of a complaint made by Lewis M. Selkirk, that the nuisance in the town of Schodack, complained of by petition to the Governor in 1896, and investigated by this Board, has not yet been abated by the railroad company.

You will no doubt remember that Mr. Bogart was designated by you in 1896 to make an investigation of this complaint, his report upon which is printed in the 17th annual report of the Board.

It is requested that you notify L. M. Selkirk as to when you will make your investigation, as he desires to accompany you. His address is post office box 275, Castleton, N. Y.

Upon the completion of your investigation please forward your report upon same to this office.

Very respectfully,

BAXTER T. SMELZER,

Secretary

UTICA, N. Y., *July* 7, 1899

BAXTER T. SMELZER, *Secretary State Board of Health:*

My Dear Sir—Pursuant to the request contained in your letter of June 27 last, I have examined into the complaint of Lewis M. Selkirk and others, Schodack, Rensselaer county, vs. N. Y. C. &

H. R. R. R. Co., which complaint recites the previous action of the State Board of Health in this matter, and the lack of full compliance with the Board's orders and directions by the railroad company.

Previous transactions in connection with this case may be found in the 17th annual report of the State Board of Health, page 101 and following.

It appears that L. M. Selkirk and thirty others in the town of Schodack and village of Castleton petitioned the Governor in August, 1896, from relief from the effects of an alleged nuisance created by the N. Y. C. & H. R. R. R. Co., and located immediately in front of the premises of L. M. Selkirk.

The Governor referred the petition to the State Board of Health August 14, 1896.

The report of the Board by John Bogart, consulting engineer, was received December 28, 1896.

At a meeting of the Board December 31, 1896, the Secretary was directed to comunicate with Hon. C. M. Depew, president of the railroad company, and on January 14, 1897, the secretary did so, enclosing a copy of the complaint and a copy of Mr. Bogart's report.

On July 5, I made a personal examination of the premises. I find that the last complaint of Mr. Selkirk recites the situation about as it exists. Refer to the enclosed sketch, which shows with reasonable accuracy the relative positions of the railroad tracks, Mr. Selkirk's house, the filling put in by the railroad and what remained to be filled, in order to fully abate the nuisance complained of by the petitioners.

The sketch shows that the embankment carrying the tracks of the railroad coming from the north, crosses the flat lands. The embankment is bridged where it is cut by a considerable brook flowing from the east and discharging into the Hudson river at a point about 600 feet northerly of Mr. Selkirk's house. The railroad embankment continues about 200 feet further south, where it meets the slope of the high ground. From this latter point north to the bridge, and between the railroad and the high ground

on the east, is an area of low ground, generally lower than low water in the river, and hence generally covered with water. The influence of the tides ebbing and flowing under the railroad bridge keeps the water in the northerly portion of this area fairly fresh, but it is so choked with weeds and marsh grass that the effect is lost before reaching the southerly half of it, and in the hot and dry months, this portion stagnates and its surface becomes covered with a greenish yellow matter common to stagnant water. Such is the condition now of a part of this area. Another part of it has been filled in with cinders by the railroad company to a point above high water. This part is a dry surface. The railroad has dumped some more cinders along its embankment apparently for further filling. But there are not enough of them to complete the filling it has undertaken to do in compliance with the resolution of the State Board of Health.

It will require possibly 100 car loads more of cinders or material to satisfactorily fill the area along that part of it where the water stagnates.

In view of all the facts, it should be only necessary for the Board by suitable resolutions to call the railroad company's attention to this matter, to secure the abatement of the nuisance and satisfy the complainants.

Respectfully submitted,

C. W. ADAMS,

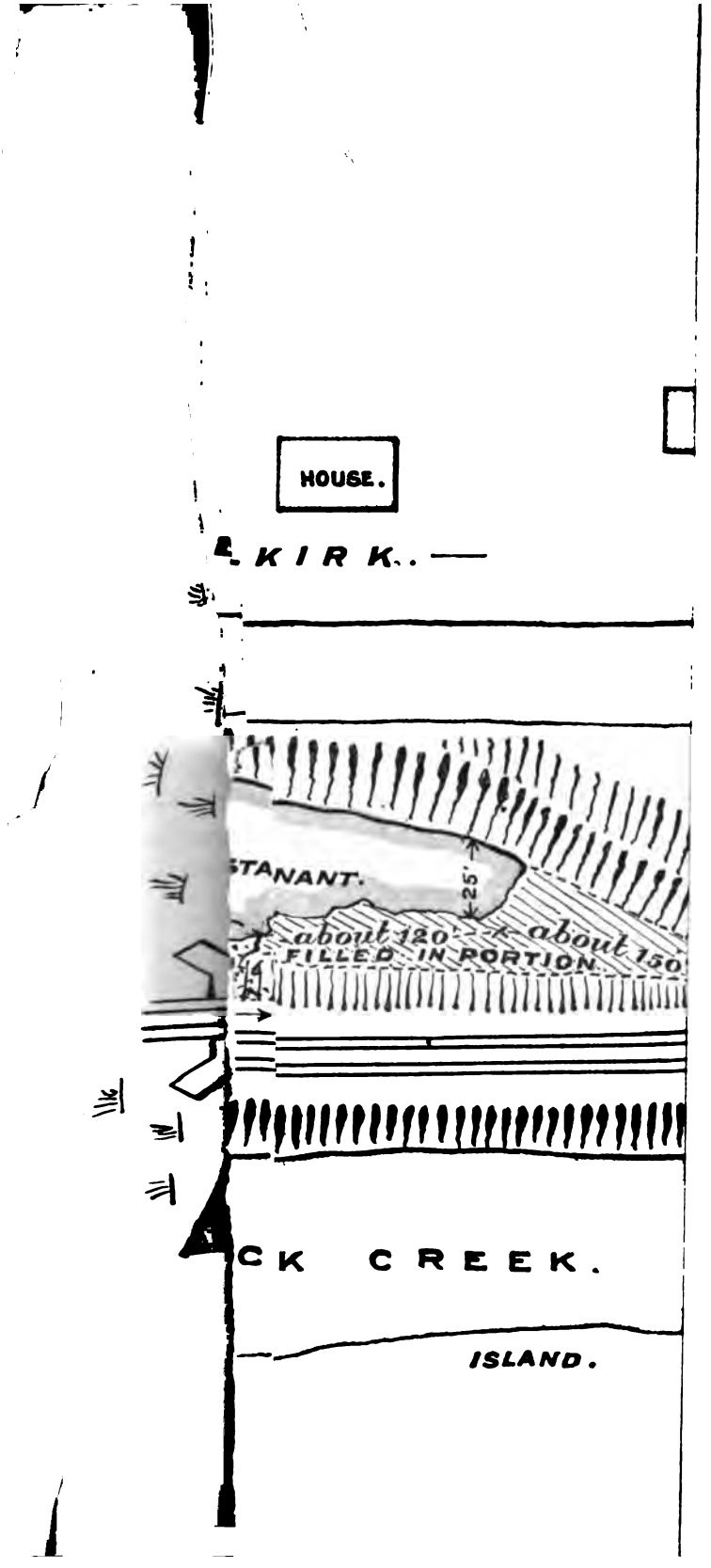
Consulting engineer

ALBANY, N. Y., *October* 5, 1899

S. R. CALLAWAY, *President New York Central and Hudson River Railroad Company, New York:*

Dear Sir—On September 29, 1898, your attention was called to a nuisance in the town of Schodack to which W. J. Wilgus on October 4, 1898, replied as follows:

"Referring to your letter of September 29 addressed to Mr. Callaway, I beg to state that directions have been issued for the filling up of the southerly and northerly pools at Schodack Landing station, so as to abate the nuisance complained of.


HOUSE.
KIRK.
STANANT.
25'
about 120'
about 150'
FILLED IN PORTION
CK CREEK.
ISLAND.

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"In regard to the filling up of the middle pool, however, we find that there is a free circulation through the culvert between the basin and the river, and the conditions complained of would exist regardless of the railroad, due to the washings from barnyards and decaying vegetable matter."

On June 27, 1899, L. M. Selkirk, the original complainant, informed this Board that the nuisance still existed, the filling in as promised by Mr. Wilgus not having been completed.

One of the consulting engineers of this Board, C. W. Adams, was directed to investigate the last complaint of Mr. Selkirk, and a copy of his report is herewith enclosed with the information that at a meeting of this Board, held September 22, 1899, the report was accepted and the following motion adopted:

"Dr. Smith: I move you that the secretary be directed to communicate with the authorities of New York Central and Hudson river railroad company, directing them to abate this nuisance promptly."

As the original complaint in this case was brought to the attention of your company in August 1896, it is requested that instructions be given by you looking to the prompt abatement of the nuisance.

Very respectfully,

BAXTER T. SMELZER,

Secretary

NEW YORK, *October* 17, 1899

BAXTER T. SMELZER, M. D., *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—Referring to your communication of October 5 to President Callaway in relation to alleged nuisance in the town of Schodack, I beg to call your attention to the attached report from the division engineer who has charge of this portion of the line, stating that my instructions of last year were carried out, and that the impression was that everything was satisfactory. I therefore beg to differ from Mr. Selkirk's statement that my promise had not been kept. However, as this is a

comparatively small matter, I have instructed the division engineer to fill in the portion of the bay complained of, and to obtain from Mr. Selkirk a written statement of his satisfaction with the work.

Yours respectfully,
W. J. WILGUS,
Chief engineer

NEW YORK, *October* 16, 1899

W. J. WILGUS, *Chief Engineer:*

Dear Sir—Returning attached papers relative to filling pools at Schodack Landing on the Hudson division, Supervisor Coon advises me that this filling was done as you directed last year, and he was under the impression everything was satisfactory.

Mr. Coon also says that the bay referred to in report of Civil engineer Adams has ample waterway connection with river under foot bridge, but in order to make the matter satisfactory, he has filled this bay.

If you think best, he can get statement from Mr. Selkirk stating he is satisfied, which will release us from any further annoyance.

Yours respectfully,
J. C. NELSON

DIPHTHERIA AT WILLARD STATE HOSPITAL

WILLARD, *June* 17, 1899

B. T. SMELZER, M. D., *Secretary State Board of Health, Albany, N. Y.:*

Dear Doctor—We are again troubled with an epidemic of diphtheria at this hospital, somewhat similar to the one that we had two years ago. At that time you detailed Dr. Curtis to work with us in studying into the causation of the epidemic, and

he made a most satisfactory report on what data we could gather.

It would seem in this epidemic as if it was less possible than in the one referred to even, to tell how the trouble got into the hospital, and it has occurred to me that if you were investigating contagious diseases in the state at this time, that it might be that you would like to have some one look into this with us. If so, I would be very glad indeed to co-operate with you. The first cases that we noticed in the present epidemic were recognized as diphtheria at about June 5, and since that time there have been nine cases in all, developing in four of the different buildings, in two at least almost simultaneously, and in people who are not personally acquainted. The trouble has seemed to be extremely infectious, although not particularly severe, and in the cases thus far cared for, yielding readily to treatment.

The sick have been entirely from among the employees, and all adults.

We have had to quarantine one of the buildings completely, and as we have had cases in four buildings quite widely separated from each other, it has almost become a question as to whether we had better not quarantine the institution from the outside public for a while. However, it may be that we will be able to stamp out this trouble after awhile, unless it should later appear that it is due to local sanitary conditions. I do not know that the old idea of diphtheria being attributable to bad sewerage is as strong as it used to be, or as much credence given to it. Certain authorities seem to think that it must be induced by actual infection from the diphtheritic patient, but in a case like ours I can hardly understand how this could be, from the fact that it broke out, as stated, in two or three individuals who knew little or nothing of each other, and in different buildings.

Very truly yours,

W. AUSTIN MACY,

Medical superintendent

WILLARD, *June* 17, 1899

B. T. SMELZER, M. D., *Secretary State Board of Health, Albany, N. Y.:*

Dear Doctor—Following my letter of to-day in regard to the epidemic of diphtheria that we are having at this hospital, I write to state that since I first drew this letter, in fact during the day, I have ascertained that one of the employees who came down first with this disease, was on intimate terms with one of the other employees, and such information in full that I have obtained regarding their visiting around, etc., seems to me to very satisfactorily account for the spread of all of the cases that we have had here. When it first began I thought that there were several foci, and that it would be impossible to account for the outbreak of the trouble on the theory of this having been brought in here by some one individual, but now I think that the proof is conclusive in this direction. The attendant referred to had been sent for patients in the outlying district, in towns where they had diphtheria, and while we cannot ascertain that he came in contact with any people having this disease, there is little or no doubt that this was the case, and that the other employees who took the disease here were infected by his visiting among them and its being transmitted from one to another. This being the case I do not think this is as important to have this searched up by a possible investigation, and write so as to prevent my letter of inquiry causing you any trouble.

Very respectfully yours,

W. AUSTIN MACY,

Medical superintendent

ALBANY, N. Y., *June* 19, 1899

W. A. MACY, M. D., *Medical Superintendent, Willard State Hospital, Willard, N. Y.:*

Dear Sir—I am in receipt of your communications of the 17th instant in the matter of an epidemic of diphtheria at the Willard hospital, and am pleased to note that you have located the source of infection.

If the epidemic continues, and you deem it to be necessary, a medical expert will be sent to Willard to advise with you in the matter.

Very respectfully,
BAXTER T. SMELZER,
Secretary

WILLARD, *July* 5, 1899

BAXTER T. SMELZER, M. D., *Secretary State Board of Health, Albany, N. Y.:*

Dear Doctor—Following my last letter referring to the diphtheria epidemic we have been suffering from at this hospital, I write to ask whether there is anything new regarding the etiology of this disease which has come to your attention latterly which might connect diphtheria with imperfect sanitation or cause it to be attributed to anything else than direct infection.

We are having considerable more trouble latterly in stopping the diphtheria at the hospital than we had anticipated.

At the end of last week I supposed that it was entirely under control. We had quarantined buildings where the disease had occurred, and taken cultures from all suspicious cases, even where there was only redness of the throat, both among the patients and employees, and 10 days had elapsed without the development of any new cases. The quarantine was raised Sunday afternoon at the last building, and the next day we had an outbreak of three cases with membrane in that building and four cases in the main building, one case in the south wing, one in the north wing and two in the center. Yesterday we had one case with membrane in one of the buildings not previously infected and one case in the building where the first case occurred. Besides these there were quite a number of suspects, possibly as many more as the number of cases with membrane.

All cases thus far have been comparatively mild and yielded readily to treatment with antitoxine, although the last case, the one reported to-day, was more severe than any of those that occurred previously. If we should happen to have a large number

of cases break out now it would be a very serious thing for us to handle, though we have enough antitoxine on hand to administer to all cases that actually have the disease, and have given immunizing doses to a certain number of those where there was the most trouble. As to how far it might be best for us to go with immunizing doses to those not yet infected seems to me to be somewhat of a question, and in case there is very much that is new that has come to the attention of your Board, I would like very much if we could have the benefit of a consultation with one of your medical experts, so that we can take further steps, if necessary, in stamping out this trouble, which is so dread when it assumes a very malignant form, and would be in this case should it get into the families of the employees or into the surrounding district.

I would say in connection with the above that we have stopped receiving all patients from our hospital district, they being temporarily taken by the other state hospitals, and I have practically quarantined the whole hospital, allowing only a few people to go and come without our lines, and those only in cases where they have no children in their families, and have every opportunity to keep away from the other members with regard to taking their meals and the matter of sleeping quarters.

I am trying, as far as possible, to quarantine one building against the other on the grounds, though with some of them this is almost, if not quite, impossible, for the reason that some of the work, like the laundry work, etc., has to go on in order to keep the people in condition of bodily cleanliness, etc.

If there is anything further that you would suggest in this matter, I would be glad to hear from you.

Very respectfully,

W. AUSTIN MACY,

Medical superintendent

ALBANY, N. Y., *July* 6, 1899

W. A. MACY, M. D., *Medical Superintendent, Willard, N. Y.:*

Dear Doctor—I am sorry to learn of the continuance of the diphtheria in the Willard state hospital. I do not think there is anything new of recent time in the etiology of the disease. The absolute isolation of the infection and of those sick for a sufficiently prolonged period, and the destruction thereof, continues to be the essential thing in getting rid of it. Imperfect sanitation plays a subordinate part, and I do not know of any new development which would magnify it. As we have long understood, the infection lingers in damp, sunless, ill-ventilated places, and very likely also is given off in sewer air. Certainly it will disappear most readily where conditions incident to these do not exist.

The chief thing is the quarantine. I would advise the large use of the culture test of all suspected throats. These germs may be found in the fauces of well people, who have been about the sick, and so many retain and carry it. Suppose you should direct the systematic use of antiseptic gargles or of peroxide of hydrogen sprays for all in contact.

Then keep the sick in for six weeks—at least till repeated tests show no bacilli.

Make certain that no food or utensils go out of the sick room. Set up a quarantine hospital and send every one sick to it. At the same time, as suggested, have the attendants on the sick list keep the same quarantine.

Let no infected article escape boiling, sterilizing and prolonged exposure to air.

Fumigate every place where it has been. I would prefer chlorine, which, though very disagreeable, is deadly to the germs. Coating metals exposed to it lightly with vaseline will protect them.

If you use formaldehyde use not less than 12 ounces per 1000 cubic feet, and better with steam in the room, and continue it for six hours or longer. But do not trust any bedding to its fumigation.

Clean the place and then expose for days to fresh air.

I see no reason why, if no precaution escapes you, that except from new infection you should have a prolonged continuance of this trouble, but I know how difficult it is to control everything absolutely.

Very respectfully,

BAXTER T. SMELZER,

Secretary

ALBANY, *July* 21, 1899

To the State Board of Health:

Early in June one of the attendants of the Willard state hospital went to a neighboring city to bring a patient to the hospital, and a few days later developed diphtheria. The source of his infection was not directly traced, but the disease had prevailed in that locality to which he was sent.

This was the first case to occur in the hospital since two years ago, when diphtheria prevailed from February to July, but subsequently came to a complete cessation. From this first case 15 others soon contracted the disease, all attendants, and mostly in one building. An interval of 10 days followed without new cases, and then, about the 4th of July, more cases occurred, simultaneously in five different buildings, numerous cases of true membraneous diphtheria and with them not a few cases of simple sore throat. New cases appeared for a week, indiscriminately in the different buildings. On the 15th a stenographer who came three days before and without probable outside infection was taken, and also a bookkeeper about the same time; it also occurred in the person and family of one of the resident physicians. Thirty-four cases of true membraneous diphtheria have occurred to this time, one of them being a child, but none of the inmates or patients, of whom there are about 2000, have as yet taken the disease. The population of this large institution of some 2700 is almost exclusively adults.

The disease is of a mild type and no case has been fatal. The nature of it has been verified by bacteriological test and the Klebs-Loeffler bacillus found present in all. Not only this, but

a remarkable feature of the outbreak is the discovery of the bacillus in a large number of persons in whom the disease has not developed.

This latter fact and the mildness of the disease has raised the question in the minds of some as to whether the disease is really diphtheria; sympathy with expressions to this effect from persons outside has tended to interfere with the quarantine.

It should not, however, be questioned. A very complete laboratory, extensively enlarged from the existing establishment, has been equipped and provided with a competent expert staff working constantly; a general study is being made of both sick and well and a card record kept. The bacilli found have the morphological characters of the Klebs-Loeffler bacillus, generally in typical form, though I gathered that antitypical specimens were more recently being discovered. They have been, however, almost uniformly true and typical. Their virulence has not been tested on the guinea pig, but is to be; there can be little doubt that their nature will be confirmed.

The role of the Klebs-Loeffler bacillus is, so far as I know, well established; it is doubted by no one that its presence is diagnostic of diphtheria.

The lack of severity of the disease is of little weight; the type of disease varies with different epidemics, and it is noteworthy that the prevailing type of most infectious diseases, notably scarlet fever now for a considerable time and smallpox for the past year, is one of unusual mildness almost everywhere. The subjects of this epidemic are also almost entirely adults.

As to the discovery of the bacilli in the throats of many who themselves exhibit no disease, this, too, is a matter of common observation, though not often so general as is occurring here. Any one coming in contact with the sick may take these bacilli up, even highly virulent, and being for whatever reason immune their presence has no morbific action. Such individuals, though not having diphtheria, are known to serve as carriers of infection, and outbreaks in schools have been traced to such an origin. In truth this is the most serious problem in this present epidemic,



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FOR THE

ROTECTION OF WATER SUPPLIES

for immune persons may carry about diphtheria bacilli for many weeks in spite often of every effort to destroy them and may convey the disease to others as long as they do so.

The measures that are being taken to control the epidemic under the best obtainable counsel leave nothing to suggest. The entire hospital, buildings and grounds is under quarantine. The health officers of both towns in which it is situated, Ovid and Romulus, unite with and second the medical superintendent in maintaining this quarantine. All the attendants have had immunizing doses of antitoxine and the same protection is being extended to the inmates, and will be renewed as necessary. Those who are sick are placed in seclusion, the buildings are disinfected by washing and fumigation and whatever is possible is being done to disinfect the persons of all in whom the Klebs-Loeffler bacilli are detected. If these are persisted in until all the germs are destroyed there is no reason to anticipate the extension of the disease beyond its present limits, which has thus far been averted.

The phenomena of the epidemic are those of one originating from an outside source, and not of a local established epidemic.

Very respectfully,

F. C. CURTIS, M. D.

RULES AND REGULATIONS

FOR THE

SANITARY PROTECTION OF WATER SUPPLIES

CITY OF ROME

ALBANY, *October* 25, 1899

BAXTER T. SMELZER, M. D., *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—I enclose herewith copy of my letter of October 19 to the mayor of Rome and his reply under date of October 24; also rules and regulations referred to, with the amendments suggested by the mayor, made in pencil.

Very truly yours,
EDWARD A. BOND,
State engineer and surveyor

ALBANY, *October* 19, 1899

C. H. HAYDEN, *Rome, N. Y.:*

Dear Sir—The proposed rules and regulations for the sanitary protection of the public water supply of your city was referred by the State Board of Health to me as chairman of the drainage committee. I have wondered somewhat if the rules, as adopted by your board, went into detail enough to cover the requirements of the case.

I send you herewith a copy of a set of rules and regulations of sanitary protection of your water supply, as recommended by Prof. Olin. H. Landreth, consulting engineer for the State Board of Health, that was presented to my predecessor, July 23, 1898. I would be glad if your associates would look this over carefully and see if it will not meet the requirements of the case more positively than your resolutions that do not go into detail so much, and would be glad if you would make suggestions as to changes that would be desirable from your standpoint.

An early reply is requested and your communication will receive prompt attention.

Very truly yours,
EDWARD A. BOND,
State engineer and surveyor

ROME, N. Y., *October* 24, 1899

Hon. EDWARD A. BOND, *State Engineer:*

My Dear Sir—In reply to your letter of October 19, 1899, to C. T. Hayden, I desire to say that the proposed rules have been submitted to the board of water and sewer commissioners, and they are greatly pleased with them, and desire to thank you for the valuable suggestions contained in your letter and the work expended upon this matter.

The only changes we have to suggest are as follows:

1 Page 1, line 10, after "Ridge mills," insert "and also Fish creek or other waters which may be hereafter acquired." (See chapter 624, laws of 1899, section 10.)

2 Page 4, subdivision 14, line 8, before "the city" insert "lock No. 6." (Lock No. 6 is near the reservoir. The line of the city of Rome is nearly two miles above lock No. 6 and the reservoir.)

3 Page 5, before the signatures of president and secretary, after "1893," insert "as amended by chapter 251 of the laws of 1899, and same shall be published and filed in Oneida county clerk's office as therein provided."

4 The laws of 1899 provide that a violation of the rules is a misdemeanor and as such punishable, and also subjects the offender to the payment of a penalty. The subsequent section provides for an action with injunction. It is suggested that provision be made in the rules, subdivision 16, so that one penalty will not conflict with another.

Again thanking you for the attention you have given this matter, I am yours very respectfully,

A. S. WHITE,
Mayor and ex officio chairman of the board of water and sewer commissioners

Rules and regulations for the protection from contamination of the water supply of the city of Rome, New York

The following rules and regulations apply to the Mohawk river and all its tributaries above the Ridge mills dam in the Mohawk river, forming the impounding reservoir of the public water sup-

ply of the city of Rome, N. Y., and also to the Black river canal and its stream tributaries and feeders between the city of Rome and the upper end of the Forestport feeder, the waters of which canal overflow at numerous waste-weirs into the Mohawk river and its tributaries above the said impounding reservoir at Ridge mills, and also Fish creek or other waters which may hereafter be required:

(1) No privy or vault or place for the deposit or storage of human excreta shall be constructed, located or maintained within 50 feet, horizontal measurement, of the high-water mark of any pond or reservoir, or of the edge, margin or precipitous bank of any spring, stream, ditch, gutter or watercourse of any kind, the water of which, when running, flows eventually into a stream or reservoir forming the public water supply of the city of Rome, N. Y.

(2) No privy vault, pit or cesspool or other nontransportable receptacle of any kind used for the deposit, reception or storage of human excreta shall be constructed, located or maintained within 300 feet, horizontal measurement, of the high-water mark of any pond or reservoir, or within 130 feet, horizontal measurement, of the edge, margin or precipitous bank of any spring, stream, ditch, gutter or watercourse of any kind, the waters of which, when running, flow eventually into a stream or reservoir forming the public water supply of the city of Rome.

(3) Every privy or place of deposit, reception or storage of human excreta which is constructed, located or maintained between the aforesaid limits of 50 feet, and 300 feet, horizontal measurement, of the high-water mark of any pond or reservoir, or between the aforesaid limits of 50 feet and 130 feet, horizontal measurement, of the edge, margin or precipitous bank of any spring, stream, ditch, gutter or watercourse aforesaid, and from which privy the excreta are not at once removed automatically by means of suitable water-tight pipes or conduits to some proper place of ultimate disposal as hereinafter provided, shall be arranged in such manner that all said excreta shall be received and temporarily maintained in suitable vessels or receptacles, which shall be at all times main-

tained in an absolutely water-tight condition, and which shall admit of convenient removal to some place of ultimate disposal as hereinafter set forth.

(4) The excreta collected in the aforesaid removable receptacles shall be removed and the rceptacles cleansed and disinfected as often as may be found necessary to maintain the privy in proper sanitary condition and to effectually and strictly prevent any overflow upon the soil or the foundation or floor of the privy. In effectng this removal the utmost care shall be exercised that none of the contents be allowed to escape while being transported from the privy to the place of disposal hereinafter specified, and that the least possible annoyance and inconvenience be caused to the occupants of the premises or of adjoining premises.

(5) Unless otherwise specifically ordered or permitted by the State Board of Health, the excreta collected in the aforesaid receptacles, shall, when removed, be disposed of by burying in trenches or by thoroughly digging into the soil at such places and in such manner as to effectually prevent them or any portion of them being washed over the surface of the ground by rain or melting snow, and at a distance not less than 500 feet, horizontal measurement, from the high-water mark of any pond or reservoir, and not less than 300 feet, horizontal measurement, from the edge, margin, or precipitous bank of any spring, stream, ditch. gutter, or watercourse of any kind, the water of which, when running, flows eventually into a stream or reservoir forming the public water supply of the city of Rome, N. Y.

(6) Whenever it shall be found that, owing to the character of the soil or of the surface of the ground, or the character of subsoil, or height or flow of surface water or ground water, or other special local condition, the excremental matter from a privy or aforesaid receptacle, or from any trench or place of disposal, may in the option of the State Board of Health, be washed over the surface of the ground, or through the soil into any pond, reservoir, spring, stream, ditch, gutter, or other watercourse, which, when running, flows into the aforesaid public water supply of the city of Rome, then the said privy or receptacle for excreta

or trench or place of disposal, shall after due notice to the owner thereof be removed to such greater distances, or to such places, as shall be considered safe by the State Board of Health.

HOUSE SLOPS, SINK WASTE, LAUNDRY WATER, REFUSE, GARBAGE, ETC.

(7) No sewage, garbage, putrescible matter, house slop, sink waste, water in which milk cans, clothing or bedding have been washed or rinsed nor any polluted water or liquid shall be thrown or discharged directly into any pond, reservoir, spring, stream, ditch, gutter, or other watercourse aforesaid, nor shall any such liquid or solid matter be thrown or discharged upon the surface of the ground or into the ground below the surface in any manner whereby the same may flow into any reservoir, pond, spring, stream, ditch, gutter, or other watercourse aforesaid, within 50 feet, horizontal measurement, of the high-water mark, edge, margin or precipitous bank, of any pond, reservoir, spring, stream, ditch, gutter or other watercourse aforesaid.

(8) No clothing, animals, vehicles, nor anything which pollutes water shall be washed in, nor shall any person bathe in any pond, reservoir, spring, stream, ditch, gutter, or other watercourse aforesaid within a distance of three miles, as the stream flows, from the dam of the reservoir forming the public water supply of the city of Rome, N. Y.

MANURES, COMPOST, ETC.

(9) No animal manure of any kind, nor any cleanings from stables, cattle pen, pigsty, henhouse, barnyard, hog yard, or poultry yard shall be thrown, deposited or allowed to fall or flow into any pond, reservoir, spring, stream, ditch, gutter, or other watercourse aforesaid; and no stable, cattle pen, pigsty, henhouse, barnyard, hog yard, poultry yard, hitching place or standing place for horses or other animals, nor any manure pile, compost heap, piles of fermented or decayed fruit, vegetables, roots, grain, nor any piles of sawdust, leaves or other vegetable matter shall be located, maintained or allowed to remain in such place or man-

ner that the washings of drainage therefrom may flow by open or covered drains or channels into any pond, reservoir, spring, stream, ditch, gutter, or other watercourse aforesaid, without first having passed over or through such amount of soil as to have become properly purified, and in no case shall the distance from the aforesaid stable, cattle-pen, etc., to the high-water mark, edge, margin, or precipitous bank of the aforesaid pond, reservoir, spring, stream, ditch, gutter or other watercourse, be less than 50 feet, horizontal measurement.

(10) No human excreta nor compost containing human excreta shall be spread upon the ground witrin 130 feet, horizontal measurement, of the high-water mark, edge, margin or precipitous bank of any reservoir, pond, spring, stream, ditch, gutter or other watercourse aforesaid, and no manure or compost of any kind shall be spread or deposited so as to be washed a less distance than 50 feet over the surface of the ground before reaching the nearest point of the aforesaid watercourse.

DEAD ANIMALS, MANUFACTURING WASTE, ETC.

(11) No dead animal, bird or fish, nor any part thereof, nor any putrescible matter nor polluted water from any slaughter house, dairy, creamery, cider mill, or other manufactory shall be thrown or be allowed to run into any pond, reservoir, spring, stream, ditch, gutter, or watercourse aforesaid, nor shall any such matter be so deposited that any portion thereof, nor of the polluted drainage therefrom shall be washed therefrom over the surface of the ground or through the soil a less distance than 100 feet before reaching the nearest point of the aforesaid watercourse.

CONTROL OF RESERVOIR, STORM WATER, ETC.

(12) The first water arising from every storm which enters the impounding reservoir shall not be taken for the public water supply of the city of Rome, and a sufficiently long time shall be allowed to elapse after the beginning of each rain or storm to permit of the surface of the ground within the drainage area

being thoroughly washed off, and for the wash-off water to pass the impounding reservoir, before the water in the impounding reservoir shall be taken into the public water supply of the city of Rome.

(13) No screen or filter shall be used in either the impounding or in the distributing reservoirs of the public water-supply of the city of Rome, while in a foul or unclean condition, and no screen or filter shall be used in either of the aforesaid reservoirs which is not susceptible of constant and ready examination and cleansing.

EXCRETA, MANURE AND OTHER WASTE FROM CANAL BOATS

(14) No human excreta, stable manure, stable cleanings nor refuse, nor any garbage, animal or vegetable waste, kitchen-slops, nor any putrescible matter of any kind, shall be thrown, deposited, or allowed to pass directly or indirectly into the waters or bed, or onto the banks or sides of the Black River canal, or of its feeders, from any canal boat occupying or navigating the said canal between lock No. 6 in the city of Rome and lock No. 71 at the north end of the summit level at Boonville, nor while navigating or occupying the Forestport feeder. Every canal boat navigating this canal or feeder shall be provided with water-tight covered receptacles for the collection and retention of all such excreta, manure and other refuse, named, and all such excreta, stable manure, stable cleanings and refuse, garbage, animal or vegetable waste, kitchen slops, and all other putrescible matter of any kind produced or originating on each canal boat within the aforesaid limits of the canal and the Forestport feeder shall be strictly and carefully gathered and retained in the aforesaid receptacles in a water-tight and covered condition until emptied or discharged as hereafter provided.

(15) Every receptacle used for the collection, storage and retention of excreta and other waste aforesaid, on every canal boat entering the aforesaid limits of the Black River canal or the Forestport feeder, shall before entering these limits or feeder be

emptied and thoroughly cleansed and shall be in such cleansed condition when the boat enters the limits or feeder aforesaid.

Every such receptacle shall at least once in each 48 hours during the entire time the boat remains within the limits of the canal and the feeder aforesaid, be emptied of its contents and thoroughly cleansed. When emptied, the contents shall be deposited in shallow pits or openings and covered thoroughly with soil, and within the bounds of the state canal lands, but where the drainage therefrom shall not pass into the canal nor into any stream which eventually enters the water supply of the city of Rome, and also where it shall be neither harmful nor objectionable to any adjacent resident or occupant. The place for such discharge shall be designated by the superintendent of that section of Black River canal.

PENALTY

(16) In accordance with section 70 of chapter 661 of the laws of 1893, a penalty of $200 is hereby imposed against any person, firm or corporation who shall be adjudged guilty of a violation of, or a non-compliance with, any of the above mandatory rules and regulations, the same to be recovered under the above said law.

At a meeting of the State Board of Health of New York, held at Syracuse, N. Y., on the 16th day of November 1899, the above rules and regulations for the sanitary protection of the public water-supply of the city of Rome, N. Y., were made, ordained and established, pursuant to chapter 661 of the laws of the state of New York for 1893, as amended by chapter 251, laws of 1899, and the same shall be published and filed in Oneida county clerk's office as therein provided.

DANIEL LEWIS, M. D.,
President

BAXTER T. SMELZER, M. D.,
Secretary

ALBANY, *December* 14, 1899

Publishers of the Rome Daily Sentinel, Rome, N. Y.:

Gentlemen—We send you herewith enclosed copy of rules and regulations for the protection from contamination of the water supply of the city of Rome, N. Y., with the request that the same be published in your paper once in each week for six consecutive weeks, and send bill for same to the water commissioners of the city of Rome, in compliance with the following section of law:

"§ 70. Rules and regulations of state board.—The state board of health may make rules and regulations for the protection from contamination of any or all public supplies of potable waters and their sources within the state, and impose penalties for the violation thereof or the non-compliance therewith, not exceeding two hundred dollars for every such violation or non-compliance. Every such rule or regulation shall be published at least once in each week for six consecutive weeks, in at least one newspaper of the county where the waters to which it relates are located. *The cost of such publication shall be paid by the corporation or municipality benefited by the protection of the water supply, to which the rule or regulation published relates.* The affidavit of the printer, publisher or proprietor of the newspaper in which such rule or regulation is published may be filed, with the rule or regulation published, in the county clerk's office of such county, and such affidavit and rule and regulation shall be conclusive evidence of such publication, and of all the facts therein stated in all courts and places."

After the rules have been published for six consecutive weeks as required by the above section of law, you will please forward a copy of the rules as published, together with your affidavit, to this office, in order that the same may be filed in the office of the county clerk of your county.

Please acknowledge receipt of this.

Very respectfully,

BAXTER T. SMELZER,

Secretary

ALBANY, *December* 14, 1899

Publishers of the Rome Semi-Weekly Citizen, Rome, N. Y.:

Gentlemen—We send you herewith enclosed copy of rules and regulations for the protection from contamination of the water supply of the city of Rome, N. Y., with the request that the same be published in your paper once in each week for six consecutive weeks, and send bill for same to the water commissioners of the city of Rome, in compliance with the following section of law:

"§ 70. Rules and regulations of state board.—The state board of health may make rules and regulations for the protection from contamination of any or all public supplies of potable waters and their sources within the state, and impose penalties for the violation thereof or the non-compliance therewith, not exceeding two hundred dollars for every such violation or non-compliance. Every such rule or regulation shall be published at least once in each week for six consecutive weeks, in at least one newspaper of the county where the waters to which it relates are located. *The cost of such publication shall be paid by the corporation or municipality benefited by the protection of the water supply, to which the rule or regulation published relates.* The affidavit of the printer, publisher or proprietor of the newspaper in which such rule or regulation is published may be filed, with the rule or regulation published, in the county clerk's office of such county, and such affidavit and rule and regulation shall be conclusive evidence of such publication, and of all the facts therein stated in all courts and places."

After the rules have been published for six consecutive weeks as required by the above section of law, you will please forward a copy of the rules as published, together with your affidavit, to this office, in order that the same may be filed in the office of the county clerk of your county.

Please acknowledge receipt of this.

Very respectfully,

BAXTER T. SMELZER,

Secretary

ALBANY, *February* 1, 1900

Hon. JOHN N. PARTRIDGE, *Superintendent of Public Works, Albany, N. Y.:*

Dear Sir—I have the honor to inform you that at a meeting of this Board, held November 16, 1899, rules and regulations for the sanitary protection of the public water supply of the city of Rome were made, ordained and established, pursuant to chapter 661 of the laws of 1893, as amended by chapter 251 of the laws of 1899.

The rules and regulations apply to the Mohawk river and all its tributaries above the Ridge mills dam in the Mohawk river forming the impounding reservoir of the public water supply of the city of Rome, N. Y., and also to the Black River canal and its streams, tributaries and feeders between the city of Rome and the upper end of the Forestport feeder, the waters of which canal overflow at numerous waste-weirs into the Mohawk river and its tributaries above the said impounding reservoir at Ridge mills, and also Fish creek or other waters which may hereafter be acquired.

I would respectfully request the co-operation of your department in the enforcement of compliance with sections 14 and 15 of the rules adopted by this Board, which are as follows:

"EXCRETA, MANURE AND OTHER WASTE FROM CANAL BOATS

"(14) No human excreta, stable manure, stable cleanings nor refuse, nor any garbage, animal or vegetable waste, kitchen slops, nor any putrescible matter of any kind, shall be thrown, deposited, or allowed to pass directly or indirectly into the waters or bed, or onto the banks or sides, of the Black River canal, or of its feeders, from any canal boat occupying or navigating the said canal between lock No. 6 in the city of Rome and lock No. 71 at the north end of the summit level at Boonville, nor while navigating or occupying the Forestport feeder. Every canal boat navigating this canal or feeder shall be provided with watertight, covered receptacles for the collection and retention of all

such excreta, manure and other refuse, named, and all such excreta, stable manure, stable cleanings and refuse, garbage, animal or vegetable waste, kitchen slops, and all other putrescible matter of every kind produced or originating on each canal boat within the aforesaid limits of the canal and the Forestport feeder shall be strictly and carefully gathered and retained in the aforesaid receptacles in a water-tight and covered condition until emptied or discharged as hereafter provided.

"(15) Every receptacle used for the collection, storage and retention of excreta and other waste aforesaid, on every canal boat entering the aforesaid limits of the Black river canal or the Forestport feeder, shall before entering these limits or feeder be emptied and thoroughly cleansed and shall be in such cleansed condition when the boat enters the limits or feeder aforesaid.

"Every such receptacle shall at least once in each 48 hours during the entire time the boat remains within the limits of the canal and the feeder aforesaid, be emptied of its contents and thoroughly cleansed. When emptied, the contents shall be deposited in shallow pits or openings and covered thoroughly with soil, and within the bounds of the state canal lands, but where the drainage therefrom shall not pass into the canal nor into any stream which eventually enters the water-supply of the city of Rome, and also where it shall be neither harmful nor objectionable to any adjacent resident or occupant. The place for such discharge shall be designated by the superintendent of that section of Black River canal."

Very respectfully,
BAXTER T. SMELZER,
Secretary

CITY OF UTICA

At the annual meeting of the State Board of Health held at Albany, N. Y., on the 11th day of May, 1899, the following proceedings were had and taken:

Mr. Owen Cassidy presented and offered the following resolution, which was, upon vote duly taken, unanimously passed and adopted by the Board:

Resolved, That the State Board of Health under and pursuant to the provisions of the Public health law, does hereby make and adopt the following thirteen additional

Rules and regulations for the sanitary protection of the public potable water supply of the city of Utica, N. Y., to wit:

(1) No privy vault, pit or cesspool, or other nontransportable receptacle of any kind, used for the deposit, reception or storage of human excreta shall be constructed, located, placed or maintained within 50 feet, horizontal measurement, of the high-water mark of any pond or reservoir, or within 50 feet, horizontal measurement, of the edge, margin or precipitous bank of any spring, stream, ditch, gutter, drain or watercourse of any kind, the water of which, when running, flows eventually into any reservoir of the public water supply of Utica, N. Y.

(2) Every privy or place for the deposit, reception or storage of human excreta which is constructed, located or maintained within 300 feet, horizontal measurement, of the high-water mark of any pond or reservoir, or within 130 feet, horizontal measurement, of the edge, margin or precipitous bank of any spring, stream, ditch, gutter, drain or watercourse aforesaid, and from which privy the excreta are not at once removed automatically, by means of suitable water-tight pipes or conduits to some proper place of ultimate disposal as hereinafter provided, shall be arranged in such manner that all said excreta shall be received and temporarily retained in suitable vessels or receptacles, which shall be at all times maintained in an absolutely water-tight condition, and which will permit of convenient removal to some place of ultimate disposal as hereinafter set forth.

(3) The excreta collected in the aforesaid removable receptacles shall be removed, and the receptacles cleansed and deodorized as often as may be found necessary to maintain the privy in proper sanitary condition, and to effectually and strictly

prevent any overflow upon the soil or upon the foundation or floor of the privy. In effecting this removal, the utmost care shall be exercised that none of the contents be allowed to escape while being transferred from the privy to the place of disposal hereinafter specified, and that the least possible annoyance or inconvenience be caused to occupants of the premises or of the adjoining premises.

(4) Unless otherwise specifically ordered or permitted by the State Board of Health, the excreta collected in the aforesaid receptacles shall, when removed, be disposed of by burying in trenches or by thoroughly digging into the soil at such places and in such manner as to effectually prevent them being washed over the surface of the ground by rain or melting snow, and at distances not less than 500 feet, horizontal measurement, from the high-water mark of any pond or reservoir, and not less than 300 feet, horizontal measurement, from the edge, margin and precipitous bank of any spring, stream, ditch, gutter, drain or watercourse of any kind, the water of which, when running, flows into a reservoir of the public water supply of the city of Utica, N. Y.

(5) Whenever it shall be found that, owing to the character of the soil or of the surface of the ground, or to the height or flow of subsoil or surface water, or other special local condition, the excremental matter from any privy or aforesaid receptacle, or from any trench or place of disposal, may, in the opinion of the State Board of Health, be washed over the surface of the ground, or through the soil into any pond, reservoir, stream, spring, ditch, gutter, drain or other watercourse tributary to the aforesaid public water supply, then the said privy or receptacle for excreta or trench or place of disposal, shall, after due notice to the owner thereof, be removed to such greater distance, or to such places as shall be considered safe and proper by the State Board of Health.

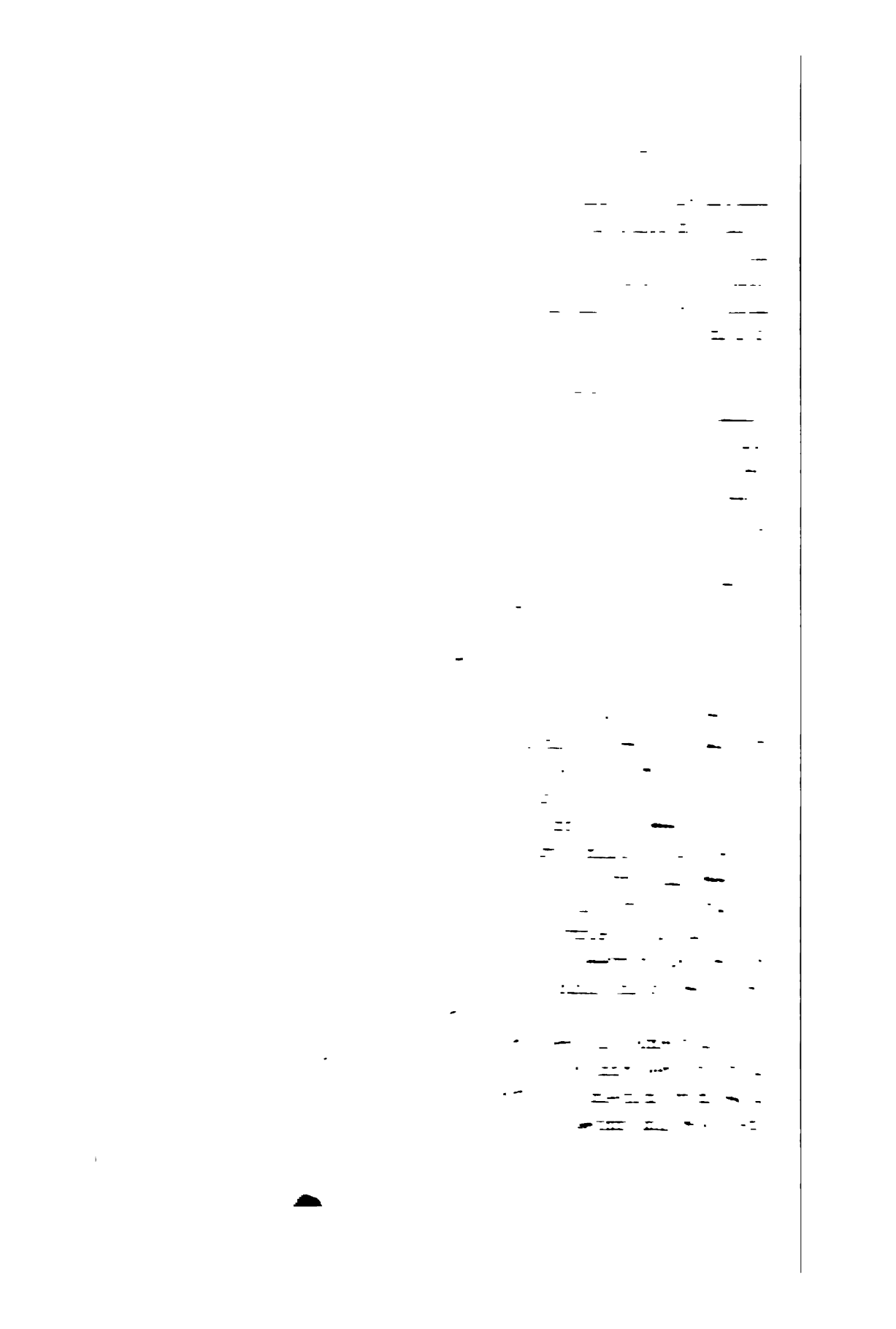
(6) No sewage, garbage, putrescible matter, house slops, sink waste, water in which milk cans, clothes or bedding have been washed or rinsed, nor any polluted water or liquid shall be

thrown or discharged directly into any pond, reservoir, spring, stream, ditch, gutter, drain or watercourse aforesaid, nor shall any such liquid or solid matter be thrown or discharged upon the surface of the ground or into the ground below the surface in any manner whereby the same may flow into any reservoir, pond, spring, stream, ditch, gutter, drain or watercourse aforesaid, within 50 feet, horizontal measurement, of the high-water mark, edge, margin, or precipitous bank of any pond, reservoir, spring, stream, ditch, gutter, drain or watercourse aforesaid.

(7) No clothing, animals, vehicles or anything which pollutes water shall be washed in nor shall any person bathe in any pond, reservoir, spring, stream, ditch, gutter, drain or watercourse aforesaid.

(8) No stable, cattle pen, pig sty, hen house, barnyard, hog yard, poultry yard, hitching place or standing place for horses or other animals, and no manure pile, compost heap, piles of fermented or decayed fruit, vegetables, roots, grain, sawdust, leaves or other vegetable substances shall be located, placed, maintained or allowed to remain in such place or manner that the washings or drainage therefrom may flow by open, blind or covered drains or channels of any kind into any pond, reservoir, spring, stream, ditch, gutter or watercourse aforesaid, without first having passed over or through such amount of soil as to have become properly purified, and in no case shall the distance from such stable, cattle pen, pig sty, hen house, barnyard, poultry yard, hitching place, or standing place for horses or other animals, manure pile, compost heap, pile of fermented or decayed fruit, vegetables, roots, grain, sawdust, leaves or other vegetable substances, to the high-water mark of such pond or reservoir be less than 100 feet, horizontal measurement, nor the distance from such stable, pen, yard, pile, heap, place or substance to the edge, margin or precipitous bank of such spring, stream, ditch, gutter or watercourse be less than 50 feet, horizontal measurement.

(9) No human excreta or compost containing human excreta shall be spread upon the ground within 250 feet horizontal measurement, of the high-water line of any pond or reservoir,



Mr. Owen Cassidy presented and offered the following resolution, which upon vote duly taken was unanimously passed and adopted by the Board:

Resolved, That in accordance with, and pursuant to the provisions of the statute in such case made and provided, the State Board of Health hereby fixes and imposes $200 as the penalty for each and every violation of, or noncompliance with, any of the rules and regulations made and adopted by it for the sanitary protection of the public potable water supply of the city of Utica, N. Y., to be recovered, as provided by law, from every corporation, person or persons guilty of any such violation or noncompliance.

DANIEL LEWIS, M. D.,
President
BAXTER T. SMELZER, M. D.,
Secretary and executive officer

SUPPRESSION OF TUBERCULOSIS

Summary of the Work done by the Tuberculosis Committee of the New York State Board of Health During the Year 1899

Since January 1, 1899, there have been tuberculin tested under the supervision of the tuberculosis committee 5324 head of cattle, of which 577 were condemned and 213 destroyed. Over 2000 letters have been written and about 10,000 circulars distributed.

The circulars of information and instruction which have been sent to veterinarians and dairymen have done much good in an educational way. The committee do not claim any originality in these circulars, and have given due credit to the originator.

We know of numerous instances where the reading of these circulars and other literature has led the owners of herds to undertake measures that have purified their herds of all taint of tuberculous disease. The committee have worked along educational lines in the way of increasing the literature relating to tuberculosis, as they have each at various times written papers and read them before local and national sanitary conferences. These have been widely published, and may serve some purpose in bringing about a purer milk and meat supply.

We desire to present two essays with our report of the year's work, viz.: "Some measures lessening the infection and spread of tuberculosis", by Dr. Jones; and "Bovine tuberculosis, its relation to the public health", by Dr. Smith, both of which are appended.

Because of the small fund available for our uses there has been no systematic examination of the herds of the state or effort on our part to hunt up diseased or infected herds. It has been more than we could do to give attention to herds reported to us as diseased. We have had constantly on hand a stock of tuberculin from the State veterinary college at Ithaca, which we have fur-

nished without charge largely to cattle owners who are willing to have their cattle tested at their own expense, and furnish us with a detailed report of the test on our blanks.

In this way many herds and isolated animals have been tested and quite a large number of diseased cattle detected, and it is gratifying to note that most dairymen testing their herds at their own expense have willingly waived the matter of state indemnity and themselves destroyed those animals found diseased.

When our inspector has found diseased cattle, and the owner requested it, or willingly permitted it, we have had such diseased cattle destroyed as soon as possible, and when diseased cattle have been appraised the owner in each case has been requested to sign a statement the following of which is a copy:

"F. W. SMITH, *Secretary Tuberculosis Committee, Syracuse, N. Y.:*
N. Y.:

"We hereby ask that our herd of cattle be appraised and submitted to the tuberculin test and that all diseased cattle be slaughtered according to the provisions of the Public health law relating to bovine tuberculosis.

"We make this request fully understanding the fact that there are no state funds available at this time for the payment of awards for tuberculous cattle destroyed.

"If our request is granted we will pay the State comptroller the expense of appraisal, furnish at our own expense butchers for the expeditious slaughter of the cattle, and bury the carcasses sufficiently deep to prevent contamination of the superficial soil.

"(Signed this ..... day of ....., 1899.)"

After this agreement has been signed and the cattle tested, appraised and destroyed, we have given the owner an award according to the provisions of section 4 of the Public health law.

Where owners of tuberculous cattle have not been willing to destroy such cattle themselves or objected to our destroying them, they have been reported to the nearest health officer having jurisdiction, and he charged with maintaining them in quarantine, and preventing the sale or use for food of their products.

The following awards have been granted for tuberculous cattle destroyed:

NAME OF OWNER	Residence	Number destroyed	Amount of award
Fred Bowen	Boonville	6	$137 00
J. E. Ashworth	Otisville	2	40 00
T. Kingsford	Oswego	9	190 00
A. C. DeGarmo	Schuylerville	5	97 50
Eugene Myers	Cuddebackville	3	42 00
Robert Hooker	Westford	14	189 00
Mrs Kittie Cameron	Brasher Falls	2	50 00
DeWayne Brown	N. Pharsalia	21	406 00
John McGarry	Gardiner	13	288 75
William Parsons	Fairmount	1	25 00
L. Ellis & Son	Laona	25	498 50

Many diseased or suspected herds or isolated animals have been reported to us which we have not examined, either because we had not sufficient funds or because of the vigorous objection on the part of the owner, on learning that no funds were available for the payment of indemnities for cattle destroyed. We have also met with in several instances the vigorous objections or protests against our examination of diseased or suspected herds, on the part of owners who have followed closely the hearings of the New York assembly investigating committee, which hearings have brought forth questionable statements from many people that have no right to recognition as authorities on sanitary, medical or pathological science, and who have not to any considerable degree adhered to established facts or logical conclusions, and who have seemingly diligently endeavored to create a sentiment contrary to facts well established by the highest authorities known to medical science regarding bovine tuberculosis, and the transmission of tuberculous disease from cattle to man.

Because some people are found who have been known to consume tuberculous milk or meat without contracting tuberculous disease, they seek to prove by this that the disease is not so transmitted. Even if this transmissibility could not be proven it is no argument in favor of eating or feeding the tubercle bacillus to man or beast.

It is undoubtedly the minority of healthy adults that will contract or succumb to infectious disease, and this being so renders the more reprehensible our failure to prevent the spread of disease by infection. Indeed, some human families seem to be exempt from certain infectious diseases and this is notably so in bovine animals.

Whole families in a herd are sometimes condemned as tuberculous, while other families in the same herd seem to be exempt from the possibilities of infection by reason of some inherent personality.

One veterinarian whose testimony seems to have been made much of, particularly by the agricultural papers, claims that it has not been proven that human tuberculosis was ever the result of infection from cattle, either by inhalation of the germ or the ingestion of the products of diseased cattle, and to aid his assertions he erroneously quotes recognized authority to the effect that "coincidence is the only thing that could be established in such cases." This same man cannot deny that the milk of cows with tuberculous udders does contain the tubercle bacillus, neither can he deny that the milk of cattle having generalized tuberculosis with no perceptible disease of the udder does also contain the bacillus.

Evidence favoring infection from cattle to man is in the nature of things circumstantial, but it is notwithstanding plentiful and overwhelmingly convincing.

Experimental infection or inoculation of man is of course impossible, and it is behind this rock that skeptics evidently think they can safely hide; and like the young partridge who, when danger threatens, hides his head under a leaf and leaves his body exposed, evidently thinking because he cannot see others will not. Evidently he has not learned that evidence far more conclusive than the single experiment he so much desires, has been often and repeatedly obtained by experimental infection of the bovine animal from man. Tuberculosis is an infectious disease and its only cause in the human or lower animals is the living germ, the tubercle bacillus.

The general characteristics of the bovine and human tuberculous germ have long since been pronounced identical. The very slight variations of the germ found in the different animal species always disappear and become identical when propagated in the same species.

Few people are blessed with continuous perfect health and good digestion. Many people, while they do not inherit disease, have been given as a heritage a low vitality or predisposition to disease, while the environment of others places them in the same position. It is these unfortunates which form a majority in certain localities in our large cities that readily fall a prey to disease germs.

Good authority attributes one-fifth of all deaths occurring in infants fed on milk to tuberculosis in its various forms. The location of the disease in many cases points clearly to the alimentary canal as the channel of infection. Young children more readily succumb to the inroads of the tubercle bacillus because of their weaker digestive powers and alkaline condition of their digestive secretions, which do not have the property of destroying the germs when taken with the food.

We can cite numerous instances coming to our knowledge of undoubted tuberculous infection of human beings from the milk of tuberculous cattle, and beg leave to cite the report of many authentic cases from such authorities as Martin, Frothingham, Cruikshank, Tschering, Osler, Bailey, of Portland Me., and Gordon and Gage, of Massachusetts. Many others might be named.

The reports and numbers of diseased cattle that have come to us during the past year and the results of our work in the examination of diseased or suspected herds should show conclusively the urgent need for continuing the work on a much larger scale than our limited means have permitted our doing during the past year.

We firmly believe that the work of continuing the suppression of tuberculosis in this state should be continued in the hands of the State Board of Health, which Board is in closest and constant communication with local boards and health officers, who

are the sentinels and guardians of the public health, and to whom the knowledge of diseased or suspected cattle is first likely to come, and that this great and important matter should not be in the control of cattlemen, whose interests commercially are too directly allied with the dairymen, or their industries.

The present law relating to the control of bovine tuberculosis we believe is good and all sufficient, except in one particular. We believe that the law should be so amended as to permit the State Board of Health to examine all dairy cattle coming into the state, with the privilege of destroying those found diseased, or to require that all imported cattle be accompanied by a certificate of health, signed by competent authority vouched for by proper authorities in the state from whence they come.

We respectfully recommend that the State Board of Health be granted for the continuance of this work for the coming year the sum of $50,000, to be used in examining herds that supply milk to all the large cities in the state, and paying indemnities for cattle condemned and destroyed.

Respectfully submitted,

S. CASE JONES, M. D.,

Chairman

FRED'K W. SMITH, M. D.,

Secretary, tuberculosis committee, State Board of Health

BOVINE TUBERCULOSIS; ITS RELATION TO THE PUBLIC HEALTH

A great deal of discussion has of late appeared in print on the subject of bovine tuberculosis and its relation to the public health, and because of the fact that many of the statements made in public print in reference to this matter have been extravagant, and not in accordance with known facts and existing conditions, the whole matter has in certain localities fallen into disrepute.

This is most unfortunate, because the matter is of great and vital importance, both to the public health and the commercial interests of one of our greatest industries. The commercial interests involved, however, while large, are only secondary. It

is very evident that there exists a general demand for information on this subject, and the question of most interest is whether or not the use for food of the products of tuberculous cattle is dangerous to human life and health.

Tuberculosis is an infectious disease, and its only cause is the living germ—the tubercle bacillus. It has been repeatedly demonstrated by authorities of unquestioned repute, and is admitted by all who have any knowledge of the subject, that the flesh and milk of tuberculous cattle does contain this germ, and that tuberculosis in the lower animals is readily produced, accidentally or experimentally by inoculation of feeding tubercle bacillus from cattle to man.

There are continually being brought to our attention, unquestioned instances of tuberculous infection of calves and swine, by drinking the milk of tuberculous cattle, and such infection has been often produced experimentally.

It is conceded that the general characteristics of tuberculosis and the germ that causes this disease in cattle and man are identical. These facts have become positive by long continued careful observations and repeated experiments on the lower animals, and they are now so universally accepted by scientific men the world over that there ought not to be any necessity for further demonstrations to prove to skeptical people that tuberculosis can be transmitted from cattle to man.

Dr. D. E. Salmon, of the Bureau of animal industry at Washington, D. C., who has long been a careful observer and has done much experimental and practical work, in a recent paper entitled "Identity of the tuberculosis of man and animals" says: "The tuberculosis of fish, of mammals and of birds is one and the same disease, and although differing in some important features when affecting these different kinds of animals, these differences are only superficial, and may be caused to disappear by forcing all varieties of bacilli to live and multiply under identical conditions.

"We may admit that infection occurs more easily from person to person, or from one bovine animal to another, than from the

human to the bovine. Possibly the bovine bacillus may not easily be transferred to mankind, and this may have something to do in preventing universal infection from tuberculous milk. But there is nothing in the facts recorded which would warrant the conclusion that bovine tuberculosis is not transmissible to man, or that the characters of the bacilli obtained from sputum prove the infection was from a human, and not from an animal source.

"This disease is more easily communicated between certain species of animals than between others, but wherever the living tubercle bacilli are allowed to exist and vegetate, there it is safe to conclude is a source of serious danger for mankind, and the more susceptible species of animals."

It is obviously impossible to prove by direct experimentation that human tuberculosis can be produced by consuming the products of tuberculous cattle, and because this has not been done a few unreasonable people will refuse to believe or admit that the disease can be so transmitted. Circumstantial evidence, however, is plentiful, and very convincing and careful observing physicians have reported many cases of death from tuberculosis where the subject has been known to use the milk of tuberculous cattle, and where it has been possible to eliminate all other sources of infection, or predisposing causes, such as heredity or environment.

Prof. C. E. Thorne, of the Ohio experiment station, concludes a recent bulletin on the subject as follows: "The development of tuberculosis in the human subject has followed in so many cases upon the use of milk and meat of tuberculous cattle, that there is no room to doubt that the disease is transmitted from cattle to man in this manner."

Skeptics have been heard to say that they have known of a whole family who drank for a long time the milk from a dairy of tuberculous cows, and not one of the family contracted the disease, and hence they cannot be convinced that drinking the milk of tuberculous cows will cause tuberculosis in man.

We readily admit that this may have occurred and may occur again, and I do not hesitate to say that I believe it is possible for some people of robust constitutions and vigorous powers to consume with impunity for an indefinite period or so long as they remain in vigorous health, milk or meat containing the living tubercle bacillus, but all people cannot do so without danger.

Few people are blessed with continuous perfect health and good digestion. Many people, while they do not inherit disease, have given them as a heritage a low vitality or predisposition to disease, while the environment of others places them in the same position.

It is these unfortunates which probably make up a majority of mankind that readily fall a prey to disease germs. Young children more readily succumb to the inroads of the tubercle bacillus because of their weaker digestive powers and alkaline condition of their digestive secretions which do not have the property of destroying the germ when taken with the food.

As a result of extended personal observation, I am thoroughly convinced that it is impossible for the most skilled observer to arrive at a definite knowledge of the true condition, or the extent and duration of the disease in many tuberculous cows until they are slaughtered; so that if it is determined to utilize for food, beef cattle that have reacted to the tuberculin test and that do not show the disease by physical signs, they should only be slaughtered under the most competent, careful and conscientious inspection.

I would under no circumstance advise the use of the milk of cattle known to be affected with tuberculosis or that had reacted to the tuberculin test, no matter how slight the disease may appear to be.

It is generally admitted that the milk of cows with tuberculous udders does contain the tubercle bacillus. It is also well known and proven that the milk of cattle having generalized tuberculosis with no perceptible disease of the udder does also contain the tubercle bacillus.

A recent report by Kempner of the veterinary school of Berlin shows that the milk of 10 out of 15 cows reacting to the tuberculin test, and showing no evidence of disease, except as shown by the reaction to tuberculin, contained the tubercle bacillus; and the virulence of their milk was proven by inoculation experiments.

Of course, it is unfair to charge the poor cow with being the cause of all human tuberculosis, but existing facts and conditions warrant us in asserting that she is guilty of causing a large share of human suffering and distress from this terrible and dreaded disease.

In the past decade over 130,000 lives have been lost in New York state alone, and a much larger number have suffered from it either by infection or commercial loss. This is the more appalling because the disease is a preventable one.

Good authority attributes one-fifth of all deaths occurring in infants fed on milk to tuberculosis in its various forms. The location of the disease in many cases points clearly to the alimentary canal as the channel of infection. Dr. Woodhead by his experiments and observations arrives at the conclusion: "That in children at least, general tuberculous infection is in many, very many, cases to be traced to the ingestion of infected milk. It is not necessary that a local lesion of the alimentary canal should be produced.

"The bacillus may run the gauntlet of the lymphoid tissue of the pharnyx and intestine to finally establish itself in the mesentery curvical, or trachio-bronchial glands from which, by a process of extension or secondary infection, tuberculosis of the peritoneum, the lungs or a generalized tuberculosis may ensue."

Inasmuch as meat and milk are the most universal articles of diet, it goes without saying that every safeguard should be thrown out to insure their purity and wholesomeness. Milk contains in nearly proper proportions all the elements of a perfect food, and we must depend largely upon it for nourishment in all the critical periods of life. It is the best possible substitute for mothers' milk for infant feeding, and gives best results when

taken fresh and in its normal state, and is much to be preferred for rearing infants to any of the much lauded so-called infant foods.

Cooking milk at the temperature of 170° for a period of 20 minutes, undoubtedly destroys the tubercle bacillus, but we prefer to know that the milk we consume is drawn from healthy cattle and kept free from contamination than to know we are eating disease germs rendered harmless by excessive heat; besides this, heating milk injuries its nutritive properties and renders it indigestible, and aside from its not being as readily assimilated, it will in some infants cause scrobutus and other degenerative diseases.

We are aware that recognized authorities have said that products of tuberculous cattle in certain stages of disease can be safely used for food. While this may be true it is certainly taking dangerous ground, and to advocate such procedure is assuming great responsibility. Of course, in cattle suffering from incipient tuberculous disease, the lesions of disease are usually confined to the viscera, which are removed when the animal is slaughtered; probably such animals can be safely used for food-beef; besides beef is usually, though not always sufficiently, cooked to destroy disease germs.

Tuberculous cattle having generalized tuberculosis or broken down or suppurating lesions should under no circumstances or conditions be utilized for food. There is plenty of evidence that bovine tuberculosis is more prevalent now than formerly. The reason for this is apparent. With the growth of our population has come an increased demand for dairy products and to meet this demand large herds have been kept more closely stabled than formerly, especially in the vicinity of the larger cities, and every effort has been made to produce the largest and longest flow of milk, thus lowering the vitality of the cattle and making them more susceptible to the inroads of disease.

Besides this farmers have not as a rule recognized the infectious nature of the disease and so have not realized the necessity of preventing the spread of infection by the prompt removal from their herds of all animals as soon as they show indications

of unthriftiness, so that with the increase of close stabling and high feeding, it is no wonder that the disease has of late years increased.

The extent to which this disease exists in cattle differs widely in different localities and depends much upon their environment, as well as upon direct infection. It is a fact beginning to be realized that cattle need pure water, sunlight, fresh air and a plentiful amount of exercise in order to be healthful and resist disease. The dark, damp basement stables so common on many of our best farms are often hotbeds of pollution and breeding places of disease.

The percentage of tuberculous cattle in this state is placed in a conservative estimate at about seven per cent of the entire number, and as has been before stated, the matter of bovine tuberculosis is not alone a sanitary question, but is rapidly assuming a commercial aspect, and if proper legislation is not soon enacted to insure its suppression, the dairy interests of our state, representing one of our greatest industries, is sure to suffer serious loss.

In the month of January last our department examined 16 herds in which over 40 per cent were diseased. Our inspectors find where a badly diseased cow has been known to exist in a herd for a period of a year or more a considerable number of apparently healthy cattle are sure to be found affected, showing as plainly as it is possible to show, we believe, the virulence of the infectiousness of this disease in cattle.

Since January 1, under the supervision of our department, there have been examined and tuberculin tested 4917 head of cattle, of which 491 or a trifle under 10 per cent of the entire number were found tuberculous. The slaughter and autopsies of these cattle have always demonstrated the great value and accuracy of tuberculin as a diagnostic agent, and have never failed to convince the most skeptical that tuberculosis exists.

To illustrate the character of some of the practical and educational work our department is doing, I will read an extract from the *Country Gentleman's* report of the slaughter in Syracuse in July last of a herd of 21 tuberculous cattle, the editor of this

paper being present as a witness, together with about 400 others, largely cattle owners, veterinarians and physicians: "The slaughter occupied about four hours. The post-mortem examinations were conducted by Dr. Turner, of Syracuse, assisted by Prof. James Law, of Cornell university. Nothing was left undone to make the inspection, slaughter and post-mortem examinations a success.

"The deductions to be drawn from this test are: (1) That tuberculin can be relied on to diagnose tuberculosis. (2) That the animals killed were a menace to the public health, and that the state tuberculosis committee were justified in quarantining this herd. (3) That to protect the consumers of this state from unwholesome milk and diseased meat, the work of cattle inspection should be vigorously prosecuted along reasonable lines."

This is from a journal that has with most other agricultural papers heretofore taken a stand antagonistic to approved methods advocated for the suppression of this disease in cattle, and has advised that the suppression of bovine tuberculosis was only worthy of consideration as a commercial problem, and its future management should be in the hands of a commission composed of practical cattlemen and veterinarians instead of the State Board of Health.

During the past winter the Syracuse board of health passed an ordinance requiring all producers of or dealers in milk to furnish that department on or before April 1 with a certificate of health of all cattle supplying milk sold within its jurisdiction, the certificate to be signed by a competent veterinarian who should be approved by the board of health.

The tuberculin test was required and owners were obliged to stand the expense of the test. Tuberculin was furnished by our department on condition that we received a report of all tests on our own temperature charts. Very nearly the entire milk supply was tested, in all about 5000 cattle, resulting in the condemnation of about five per cent of the entire number. Most of the condemned animals probably found their way to the slaughter house and were utilized for beef. A number of apparently healthy animals, however, were found in an advanced stage of disease

when slaughtered, and their carcasses were destroyed. It is gratifying to note that a number of towns and municipalities in the state have taken similar action to that taken by Syracuse.

Is it possible to keep dairy herds free from tuberculosis? It certainly is possible, with reasonable care and watchfulness on the part of the owner; but the fact remains that a majority of cattle owners, either from ignorance, lack of interest, or fear of pecuniary loss, will not yet exercise necessary care, either for their own protection or the protection of those consuming their dairy products.

All dairies should be tuberculin tested at least once a year, and if suspicious animals are found, they should be promptly removed from the herd. Additions to the herd should only be made of cattle that have successfully passed this test. A tuberculous person should never be allowed to care for cattle, or to work about stables or dairies. An observance of these rules and a reasonable amount of attention to stable sanitation will soon bring about desired results.

As a strong factor in preventing the danger from bovine tuberculosis such municipal action as will control the sale of both meat and milk, and insure competent inspection of abattoirs and dairies is most desirable and important. It has heretofore been impossible to induce the Legislature to appropriate necessary funds to properly carry on this important work.

What is most needed to favor the general suppression of this arch-destroyer of human life is a more vigorous public sentiment favoring restrictive measures for both cattle and man; physicians and medical fraternities must develop it. When this is realized there will follow as a natural sequence necessary legislative enactment.

SOME MEASURES LESSENING THE INFECTION AND SPREAD OF TUBERCULOSIS

The crusade against tuberculosis is being carried forward slowly and surely in the right direction, inasmuch as sanitarians and the medical profession in general at the present time recog-

it to be caused by a living organism—the tubercle bacillus.

It is, therefore, an infectious disease, and the only true method to pursue is to destroy or stamp out the infectious bacillus, and thus prevent the ravages of tuberculosis.

Too much praise cannot be given to those who are educating the tuberculous patient not to expectorate at random about streets or buildings, but that the sputum must be disinfected, and that pure air and cleanliness are potent factors in bringing about a recovery.

I wish to call your attention to measures that would prevent the spread of tuberculosis by having a perfectly wholesome milk and meat supply, and I shall do this by asking your attention to a paper that I read before the Conference of State and Provincial Boards of Health of North America, upon a question proposed by the province of Quebec, as follows:

"A state or province, not being ready, for various reasons, to undertake the complete and progressive eradication of tuberculosis among cattle, as undertaken in other states, its state or provincial board wishes, at least, to have sufficient laws to enable it to protect in a fair measure milk and meat supply. What legislative enactments (clauses ready for presentation to Legislature desired) would be fairly adequate to this end?

"The proposition presented by the provincial board of health of Quebec for discussion by this conference has been submitted for my consideration, with the request that I shall prepare a paper to be read before you.

"If boards of health have any function in a commonwealth, they are charged with the duty, and should be given legal authority, of protecting the public, so far as may be possible, against the ravages of disease and death.

"They must warn the public continually of the dangers which threaten life and health from unsanitary conditions; they must urge medical fraternities to disseminate among the laity a proper knowledge of infectious diseases; they must instruct local authorities in the best methods of abating nuisances, and of stamping out infection; more than this, they must not be simply an index finger pointing the way, they must be given the power and

means to compel those who disregard the fundamental principles of public hygiene to walk therein.

"First—Let the state board warn the public of the dangers that arise from the spread of infectious diseases.

"These dangers the public must accept largely from the conscientious statements of those whose knowledge is derived from special investigations and laboratory deductions.

"Second—The state boards must be given authority and sufficient money appropriations to enforce the laws which provide for the greatest security of life and saving of property.

"During the past decade 130,000 have died of tuberculosis in New York state and more than one-third of the entire population has suffered loss, pecuniary or otherwise, from the wide dissemination of this infectious disease. A single example will show the prevalence of tuberculosis among dairy cattle. The city of Syracuse passed an ordinance last year, upon the recommendations of the board of health, requiring all herds from which milk was sold to be tuberculin tested.

"Since January 1, 1899, 4117 cattle have been examined, and 378 out of that number were condemned and quarantined, a little less than 10 per cent of the total number examined. Autopsies revealed the existence of generalized tuberculosis in many of these cows.

"The enactment of the laws suppressing bovine tuberculosis can only be secured by arousing public sentiment and convincing communities that tuberculosis is caused by a definite, specific, living organism, the tubercle bacillus. People must be taught that this virulent germ is bred and disseminated both by diseased animals and human beings, and that pure meat and milk from healthy cattle is an imperative necessity; that the isolation and destruction of all tubercular animals from dairy herds is a question of economy as well as a matter of public safety. The enlightened and intelligent farmer does not strive to maintain foot-rot in his sheep, glanders in his stables, nor anthrax among his cattle. He knows from experience the serious consequences of these diseases. Why should not even greater vigilance be exer-

cised by communities and individuals to prevent the ravages of tuberculosis, which not only destroys property, but also endangers the life of so large a percentage of the citizens of the state. When the individual farmer, stockman or dairyman neglects his own private interests, and fails to employ every means which medical science has proven to be necessary for the control of this infectious disease, it is the duty of legislative bodies to provide every facility for investigating the prevalence of bovine tuberculosis, and insisting upon measures for its suppression.

"Legislatures should give state boards of health the necessary authority to apply the tuberculin test to animals for the purpose of diagnosis, and by quarantine or slaughter to render diseased animals harmless in the community. Local boards of health, enforcing ordinances which require the inspection of the food supply of any municipality, should demand certificates of health of all herds supplying milk or other dairy products to the city. A competent veterinary having authority from the state board of health should alone furnish such certificate and that only after the cattle give a negative reaction to the tuberculin test. The municipality should employ such veterinary, who should examine the herds annually and present the bills of health before May 1.

"The tests and examinations can best be made during the stabling season, and at the same time the sanitary condition of the stables, barns and other surroundings should be reported to the local board of health. The obstacles in the way of a complete or progressive eradication of bovine tuberculosis are:

"First—The ignorance of cattle owners and their indifference to the dangers that arise from keeping diseased and healthy animals together, as well as bigoted opposition to any interference with 'personal rights.'

"Second—The enormous expense of undertaking any wholesale destruction of diseased animals. The state requires the payment of indemnities for private property summarily destroyed. Large salaries also must be paid to veterinarians employed to apply the test, make careful autopsies on slaughtered animals, and to appraise the value of herds.

"But if the state cannot undertake such expense, it should at least be ready, through the state board of health, to aid the local boards of health in their fight with such prevalent disease. Letters may be furnished whereby the local boards can explain to cattle owners the nature of the infection, warn against the use of food products of diseased animals, and instruct regarding the purpose and results of the tuberculin test. The state should supply reliable serum for the tests and authorize competent veterinarians, whom local boards may employ. It may be possible for the owner of reacting animals to separate them from healthy stock and after fattening kill them for beef. This may sound dangerous and threatening to pure meat supply, but yet it is true that if careful inspection of the bodies of cattle reacting to the tuberculin test discovers no generalized tubercular disease, the meat may be safely consumed as food. Every state and province should establish public abattoirs and require the slaughter of all beef cattle under inspection. This would insure to the public a reasonably safe meat supply, and at the same time allow the producer a fair chance to dispose of cattle in the open market, which might react under the tuberculin test. In this way the farmer's loss may be diminished.

"Gradually thus the stock raiser will be educated and aided in ridding his herd of undesirable stock. If any cows are badly diseased and unfit for food, the state will be helpful to him in diagnosing their condition, and showing him that it is of the greatest benefit to purify his herd. The sooner he destroys reacting animals the less loss will be entailed, for the infection of others in his herd, which may be healthy at the time of making the test, will thereby be prevented. I believe it would be desirable for the state to authorize the State Board of Health to destroy any animal affected with tuberculosis whenever said board may deem it necessary, either for the purpose of preventing the spread of infection, or for the sake of an object lesson.

"Should the post-mortem examination on an animal thus destroyed show tuberculosis, the owner might be allowed one-half the market value by live weight. If the animal proves not to be

diseased, the owner shall receive full market value by weight. With such a statute or section in the law governing tuberculosis, and with a small annual appropriation the state board of health would, from time to time, demonstrate in different localities the conditions that exist in infected herds. These public object lessons will do more in teaching and convincing the skeptical and selfishly ignorant dairymen than all printed instruction or scientific logic.

"For the proper restriction of bovine tuberculosis in a state or province we would recommend legislation under the following general divisions:

"1. Provide means, by proper laws, or giving state or provincial boards of health the authority to investigate concerning the existence and cause of tuberculosis in cattle, and the danger to the public health therefrom, giving such boards the power to apply the tuberculin test to any animals in the state for the purpose of diagnosis, of quarantining all tuberculous cattle, or causing their destruction.

"2. Extending the powers of the state board to local boards of health, by instructing them to pass local ordinances requiring that any milk or dairy product which shall be sold or offered for sale in any municipality shall be from herds that have been examined and tuberculin tested by a competent veterinarian having authority from the state board of health, who shall certify that the herd supplying the milk or dairy product is free from all disease.

"3. Make a law to prevent importing into the state any cattle for dairy or breeding purposes until they have passed the tuberculin test.

"4. Require by law the slaughter of all fat or beef cattle which are to be sold or used for food at a public abattoir, and under competent state inspection, both ante and post mortem, putting a tag on each carcass, or quarter of carcass, setting forth the date of inspection and slaughter, the quality of meat, and the name or number of the licensed inspector. Said abattoir inspectors to be appointed and licensed by the state board of health."

FOOD AND DRUGS

FOOD AND DRUGS

23

FOOD AND DRUGS



REPORT

OF

WILLIS G. TUCKER, M. D., Ph. D.,

Director State Board of Health Laboratory

BAXTER T. SMELZER, M. D., *Secretary State Board of Health, Albany, N. Y.:*

Sir—During the year ending December 31, 1899, 69 samples of drinking water from various parts of the state have been examined and reported upon; 307 samples of food and drugs have been collected or received from other sources, of which number 266, being in good condition and in sufficient quantity for analysis, have been examined and reported upon; 12 samples of kerosene oil and seven miscellaneous articles, received from time to time, have also been examined. Various special investigations have been conducted, including an examination of coloring matter used in foods, in conformity with a law passed by the Legislature of 1899, which was begun in December and is not yet completed. Other matters of minor importance referred to me from time to time have received prompt attention, much correspondence has been carried on, and many inquiries relating to the laws governing the manufacture and sale of foods, drugs, oils, etc., and kindred topics have been answered. Reports to the Board upon the work of the laboratory have been made upon the first of each month, as heretofore, and a summary of this work, with such reports as have not been published elsewhere, including water analyses, is now transmitted as follows:

Jan. 7. Received from office of Board a sample of "Compressed Cocovena tablets," which were examined and reported upon as follows:

ALBANY, *January* 25, 1899

Dr. B. T. SMELZER, *Secretary State Board of Health, Albany:*

Dear Sir—On January 7 I received from you a package of "Cocovena" of which an examination was directed, and I would respectfully report as follows upon the same. The package was labelled "* * * Compressed cocovena tablets * * * the new century health food," and it contained 18 cakes, about one inch square and half an inch thick, wrapped in tin foil. The preparation is of a light brown color, friable, has the odor and taste of cocoa and is palatable and free from sweetness. Printed advertising matter accompanying it states that it consists of a mixture of cocoa and oatmeal. On analysis it yielded of moisture, 6.82 per cent; fat, 16.88 per cent; ash, 4.46 per cent. A microscopical examination revealed the presence of starch, apparently, in part, oat starch, as claimed, husk, etc., but nothing was observed which could be identified as foreign to the substances said to compose it. As sugar is evidently not used in its preparation, no determination of sugars was made, and as determinations of starch, fiber and theobromine afford but little information and did not seem to be called for, none were made. The results obtained show that the moisture, while rather high, is not so excessive as to be abnormal, and that the fat is fair in amount for a preparation made from cocoa and oats or other grain in which the quantity of cocoa is not guaranteed nor even stated. The ash is a fair average for articles of the kind. When prepared according to the accompanying directions it makes a palatable and a pleasant-flavored beverage. Doubtless some of the claims made for it, directly or by implication, as to its food value, are exaggerated, but it seems to compare quite favorably with many similar preparations which are in common use.

Very respectfully,
WILLIS G. TUCKER,
Director

Jan. 13. Sample of water received from Dr. E. H. Wakelee, president board of health, Big Flats. Reported upon January 20.

Jan. 16. Received two samples of kerosene oil sent by Dr. E. M. White, Cohocton, but samples being too small in quantity for examination larger samples were requested and received January 20. Examined; found to be of legal quality, and reported upon January 24.

Feb. 20. Received five samples of water from Dr. C. I. Redfield, health officer, Middletown. Reported upon February 27.

Feb. 23. Received sample water from Dr. R. J. Menzie, health officer, Caledonia. Reported upon February 27.

March 2. Received sample of water from Dr. B. R. Wakeman, health officer, Hornellsville. Reported upon March 8.

March 3. Received sample of water from Hon. G. S. Fordyce, Union Springs. Reported upon March 8.

March 9. Received sample of water from Hon. R. A. M. Deeley, president board of health, Hudson. Reported upon March 18.

March 20. Received sample of water from Dr. I. C. Haring, physician to board of health, Clarkstown. Reported upon March 31.

March 25. Received sample of water from Dr. J. C. Ladew, health officer, Mechanicville. Reported upon March 31.

March 29. Received three samples of water from C. B. Bates, president board of health, Whitehall. Reported upon April 3.

April 11. Received from office of Board 126 samples of drugs collected in September in various places. Reported upon same June 6.

April 15. Reported upon examination of a sample of "bologna or lunch food," received from Dr. G. H. Lathrop, health officer, Rockland, April 3, the use of which was said to have caused illness, as follows:

ALBANY, *April* 15, 1899

Dr. B. T. SMELZER, *Secretary State Board of Health, Albany:*

Dear Sir—On April 3 I received from you a sample of "bologna or lunch food" with a copy of a letter from Dr. G. H. Lathrop, health officer, town of Rockland, Livingston Manor, N. Y., stating that: "Of 15 persons from two years to 60 who ate it (even one ounce) 13 were made violently ill, with severe emesis and catharsis. Three of those suffered from symptoms of sporadic cholera, sick for several hours, with vomeiting and purging, and terrible cramps in muscles of legs. Two would have died, without prompt aid, and more probably." A postscript to this letter states that "one family fried it before eating and escaped sickness."

In conformity with your instructions I have made a chemical examination of this food. As received by me it was wrapped in paper, enclosed in a cigar box, wrapped in an outer paper, tied with string, and had been sent by mail to the office of the Board.

It consisted of an oval slice of chopped meat, about three-fourths of an inch in thickness and weighing 207 grams. To the edge adhered the cloth in which it had been wrapped. The meat was finely chopped, and mostly lean, but contained some fat and gristle. It had a brown color and exhaled a very slightly musty, but not a strong or disagreeable, odor.

I first examined it for irritant metallic poisons, but found in it no trace of arsenic, antimony or other metallic poison. If the statement made by Dr. Lathrop, that certain persons fried the meat before eating it and suffered no harm, is correct, it would hardly have been supposed that it could have contained any mineral poison which caused the illness of the other persons who ate it, but as it seemed advisable to settle this point I deemed it proper to make a search for metallic poisons. It has sometimes been thought that illness, such as that said to have been caused by eating this food, is due to the presence of copper or zinc which have gained access to the food from some vessel of brass, zinc or galvanized iron in which it has been cooked, but, as a matter of fact, harmful contamination of this kind is very unlikely to occur. The compounds of these metals are actively poisonous only when taken in considerable quantities, and it is in the highest degree unlikely that the small amounts which might gain access to food prepared or cooked in copper, brass or zinc vessels would give rise to alarming symptoms in a number of people. Indeed in such a case as this the likelihood of such an occurrence is hardly worth considering.

As the symptoms said to have been caused by eating this food resembled those produced by the putrefactive alkaloids, or ptomains, other portions of the meat were examined with a view to determining whether such decomposition products were present. For many years it has been known that certain articles like sausage-meat, head-cheese, ham, various kinds of fish and shell-fish might, under certain circumstances, when eaten, give rise to a train of symptoms much resembling those caused by the irritant metallic poisons. These symptoms indicate violent irritation of the gastro-intestinal tract. There is vomiting, purging, colic, cramps in the extremities, prostration, weakened action of the heart, collapse, and, not infrequently, death results. For a long time these cases were generally considered to be due to the presence of some mineral or vegetable irritant poison, purposely or accidentally added to the food, but they are now generally regarded as attributable to the presence of the products of the action of putrefactive bacteria upon albuminous matter, or, in other words, to the presence of the substances now known as putrefactive alkaloids or ptomains. The matter is still involved in much obscurity, and the separation and

identification of these putrefactive products is difficult, often unsatisfactory and sometimes impossible. Nevertheless as the facts in this case seemed to indicate that the illness to which this food gave rise was probably occasioned by some poison of this nature, an attempt was made to discover it. The attempt was but partially successful. A substance was extracted from the meat which promptly and very decidedly reduced a mixture of potassium ferricyanide and ferric chloride, a reaction somewhat characteristic, but by no means positively distinctive, of the ptomains, and produced by few of the vegetable alkaloids, but no other tests which could be considered confirmatory were obtained. It is possible that a repetition of the analysis, using a larger portion of material, might have yielded a more positive result, but as the emergency had passed it did not seem to be necessary to do this. Nevertheless, in the absence of any mineral irritant poison, and it being very unlikely that any vegetable irritant could have been present, I am of opinion that such illness as this food occasioned was due to the presence of organic poison of animal origin resulting from fermentative changes or incipient putrefaction taking place in the food.

Very respectfully,
WILLIS G. TUCKER,
Director

April 15. Received sample of water from New York state custodial asylum, Newark. Reported upon April 28.

April 19. Received sample of water from Gardner Fuller, superintendent State school for the blind, Batavia. Reported upon April 28.

April 20. Received sample of water from Dr. J. H. Bogart, health officer, Roslyn. Reported upon April 28.

April 29. Received sample of water from Dr. M. J. Hall, health officer, St. Michael's home, Mamaroneck. Reported upon May 5.

May 6. Received sample of water from Dr. J. A. Reed, health officer, Newark. Reported upon May 10.

May 31. Received sample of water from W. S. Hart, clerk of board of health, Turin. Reported upon June 7.

June 1. Received two samples of water from Dr. Cyrus Kay, health officer, Herkimer. Reported upon June 7.

June 1. Received sample of water from well at Bethlehem. Reported on June 7.

June 6. Reported as follows on the examination of the samples of drugs received from the office of the Board on April 11:

ALBANY, *June* 6, 1899

Dr. B. T. SMELZER, *Secretary State Board of Health, Albany:*

Dear Sir—On April 11 last I received from you a lot of samples of drugs which had been collected in September in Syracuse, Geneva, Seneca Falls, Auburn and Utica, and of which an examination was directed. The total number of these samples was 126, but of this number 41 were unsuitable for examination, as follows, and for the reasons stated:

There were unlabelled, 4 samples; of ammonia water, which deteriorates if so long kept, 5 samples; of tincture of opium, of which a larger sample is required for assay than was supplied, 9 samples; of tincture of iodine, which is liable to change if so long kept, 7 samples; of paregoric, for which the U. S. Pharmacopœia prescribes no method of assay, and of which the quantity supplied was too small for analysis, 8 samples; of Dover's powder, unsuitable for same reason as preceding article, 8 samples; total, 41 samples.

The 85 samples examined are numbered from 10,425 to 10,509, both inclusive, and of these samples there were found to be of good or fair quality, 67; and of inferior quality, or otherwise to vary materially from the pharmacopœial standard, 18. Reports upon these latter samples are enclosed herewith, and it is recommended that the usual warning notices be sent to the sellers of these articles. The following is a summary of the articles examined:

ARTICLE	Good or fair	Inferior
Chloroform	7	0
Ether	1	4
Compound spirit of ether	0	6
Creosote	4	2
Diluted phosphoric acid	4	1
Diluted hydrochloric acid	6	0
Diluted acetic acid	6	1
Potassium bi-tartrate	7	0
Precipitated sulphur	3	4
Seidlits powders	5	0
Sulphate of quinine	8	0
Tincture of capsicum	9	0
Tincture of rhubarb	5	0
Powdered rhubarb	2	0
	67	18

Very respectfully,
WILLIS G. TUCKER,
Director

June 14. Received sample of water from Samuel Kibbey, president board of health, Seneca Falls. Reported upon June 16.

June 16. Received sample of water from Dr. H. Eugene Smith, health officer, Mount Vernon. Reported upon June 20.

June 22. Made preliminary analysis of a sample of sewage and of effluent from purification plant at Western refuge for women, Albion. Received from O. H. Landreth, consulting engineer.

June 24. Received two samples of water from Dr. J. H. Bogart, health officer, Roslyn. Taken from polluted ponds. These waters were green in color, foul and highly offensive, and no further examination was necessary to establish the fact of pollution.

June 26. Request made by D. K. Young, of New York city, for information concerning a preparation for the hair known as "Hair health," and a sample of the preparation was subsequently purchased, examined and reported upon August 23, as follows:

It is a light colored liquid with considerable yellowish insoluble matter consisting chiefly of sulphur. Specific gravity at 25 degrees C., 1026. The bottle holds 115 cubic centimeters, or slightly less than four fluid ounces. One hundred cubic centimeters contain of lead, calculated as acetate, 2.16 grams; sulphur, 1.62 grams; glycerin, about 17.50 grams, the remainder being chiefly water with some perfume added.

June 29. Received sample of water from Dr. P. W. O'Brien, health officer, Peekskill. Reported on July 5.

July 5-9. Theodore J. Bradley, Ph. G., appointed assistant chemist on July 1 for a period of three months, visited Brockport, Albion, Medina, Lockport and Niagara Falls, and collected 151 samples of drugs for examination. These samples were subsequently examined and reported upon as elsewhere stated in this report.

July 11. Received sample of water from Hon. G. S. Fordyce, Union Springs. Reported on July 14.

July 19. Received from office of Board a sample of a disinfecting liquid, which was examined and reported on August 1.

July 22. Received sample of water from Dr. J. D. Cooke, health officer, Shortsville. Reported on July 31.

July 24. Received two samples of water from Dr. H. Eugene Smith, health officer, Mount Vernon. Reported on July 31.

August 5. Received sample of water from Dr. H. W. Wilcox, health officer, Deposit. Reported on August 10.

August 5. Received sample of water frm B. E. Elphee, clerk of board of health, Mayfield. Reported on August 10.

August 12. Received sample of water from J. Nicholson, secretary board of health, Belmont. Reported on August 18.

August 12. Received sample of water from Dr. F. T. Cochran, health officer, Hudson. Reported on August 18.

August 15–17. I visited North Tonawanda and inspected a nuisance alleged to exist in that place and reported on same, as follows:

ALBANY, *August* 18, 1899

Dr. B. T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—In conformity with your instructions I visited North Tonawanda on the 16th and 17th instants and made an inspection of the acetic acid works in that place, regarded as a nuisance by the local board of health, and inquired into the matter generally. In company with the health officer, Dr. F. W. Bently, and William Allen, president, and F. W. Robertson, member of the board, I visited the works which are operated by Peuchen & co., as I was informed. They are located near the northern boundary and more than two miles distant from the business portion of the city, in a sparsely settled region.

Concerning these works two complaints are made, first, that the gases and vapors emanating from the factory are offensive, deleterious to health and destructive to vegetation, and second, that the drainage from the works into Sawyer's creek, in the immediate vicinity, pollutes the stream, causes a deposit upon its bed and along its banks, and gives rise to offensive odors. It would appear that a petition, signed by a number of taxpaying residents in the vicinity has been presented to the board of health asking that relief be afforded them from the nuisances comp'ained of, and that the board, through its secretary, has notified the company that their works as operated constitute a nuisance, and has requested them to take such action as might be necessary to remedy the evil, but that no substantial relief has yet been afforded. A chief complainant is Eugene De Kleinst, whose organ manufactory is in close proximity to the works, and whose residence is some 300 yards, or thereabouts, distant from them. I talked with him and with several of his employes,

both men and women, and they agreed in asserting that the odors arising from the works are exceedingly irritating and highly offensive and that, in certain conditions of the wind and states of the atmosphere, doors and windows must be kept closed in an effort to exclude them, and that, as a result, they suffer great inconvenience and distress. Mr. De Kleinst stated that at times it is impossible for him and his family to sit upon their piazza with any comfort, and that at night he frequently has to close the windows in his sleeping apartments. It is also alleged that when the wind is favorable the odors can be observed in the business portions of the city, and in Martinsville, a section of the city a mile or thereabouts distant from the works, but I am inclined to think that at such distances they cannot be very annoying. Within a radius of half a mile there are few dwellings, and and no very large number of people are, in my opinion, affected by the exhalations, but this fact has little, if any, bearing upon the question at issue, for if the comfort and health of even a small number of residents are affected they are entitled to relief.

In my opinion the chief difficulty lies in the gaseous emanations from the works. Details as to the processes employed were not given me, but I understand that acetate of lime is employed which is distilled with sulphuric acid in retorts, the acetic acid thus set free being condensed and purified by redistillation. During this process more or less sulphurous acid gas is liberated, an acrid fumes are evolved, the more particularly, I think, when the retorts are charged and drawn. These fumes pervade the works, and they are irritating and suffocating. They may be plainly noticed in the vicinity, and are doubtless carried, as claimed, to a considerable distance. In my opinion this discharge of acrid and irritating gases into the atmosphere constitutes a nuisance in the vicinity which should be remedied or abated. Just how this should be accomplished I do not undertake to say, nor do I deem it the duty of the local board of health to recommend a plan and assume any responsibility in the event of its not proving successful. But I am clearly of opinion that relief should be afforded and that the company should be required so to operate their works as not to endanger the health or lives of the neighboring residents.

The pollution of the stream is, I think, a matter of secondary importance at present. The company discharge their waste water, which has at times contained some petroleum, into a ditch that runs some 500 feet or thereabouts by the side of the tracks of the New York Central railroad, and then discharges into Sawyer's creek, a sluggish stream which enters the Erie canal near Martinsville. Whether Peuchen & co. are entirely responsible for the foul condition of this stream in the immediate

vicinity I do not undertake to say, but any sluggish stream, situated as this is, is likely to become polluted and offensive, and while the deposits in this creek are foul, and the water nasty and ill-smelling, I do not think it adds very materially to the odors complained of. Peuchen & co. claim that their discharges no longer pollute it, and, while it might be cleaned out with advantage to all concerned, it would be no easy matter to secure a proper flow and natural purification of the water, at least in dry seasons of the year; and present conditions would not appear to warrant a large outlay in this direction.

I would therefore recommend that the local board of health of the city of North Tonawanda order the abatement of the nuisance complained of and above referred to, to wit, the discharge of acrid, irritating, offensive and deleterious gases and vapors into the atmosphere, and take such steps as may be necessary to secure compliance with such order, and that no action be taken in the matter of the pollution of the stream unless it should appear that offensive matter is hereafter discharged into the same in any considerable quantity. It may not be possible to operate such works as these and have them *entirely* inoffensive to the residents in the immediate neighborhood, and such manufacturing concerns, when situated in a sparsely settled region, should not be hampered by unnecessary restrictions, but I am convinced that, in this instance, the company may materially improve the existing conditions, without hardship, by the exercise of a greater care in the conduct of their works, and that it is clearly their duty to adopt such methods as will accomplish this end and afford the desired relief to those who now suffer from the evils complained of.

Respectfully submitted,
WILLIS G. TUCKER,
Director

Aug. 23. Received sample of spring water from office of Board. Reported on September 5.

Sept. 1. Report made upon the examination of 10 samples of kerosene oil collected August 21 from the following retailers: Fagan & Craig, Rensselaer; Melius & Hemstreet, Rensselaer; George Williams, Rensselaer; J. H. McKenna, Rensselaer; B. R. Lansing, Rensselaer; Mrs. D. F. Murphy, Rensselaer; Mrs. B. Raney, Rensselaer; M. L. Larkin, Rensselaer; F. M. Tousley, Bath-on-Hudson; J. Babcock, Bath-on-Hudson. All were found to be of essentially the same quality and probably obtained from the

same source. The flashing point was, in each instance, 102 degrees F., and all were, therefore, of legal quality.

Sept. 5. Reported upon examination of a sample of vanilla extract received August 5, as follows:

ALBANY, *September* 5, 1899

Dr. B. T. SMELZER, *Secretary State Board of Health, Albany:*

Dear Sir—On August 5 I received by your order from H. M. Michael, clerk of the board of health of the town of Stuyvesant, a gallon bottle of liquid labelled "Extract of vanilla." The liquid has a dark-brown color and an aromatic odor. On evaporation and drying at 110 degrees C., 100 cubic centimeters of the liquid yielded 14.5728 grams of solids. Of alcohol the liquid contains 6.43 per cent by weight, or 7.75 per cent by volume. The United States Pharmacopoeia contains a tincture of vanilla but gives no tests for purity nor any method of assay, nor does recent chemical literature contain much upon the subject, but our examination of this sample would indicate that the article owes its flavor chiefly to ceumarin and not to true vanilla. It would appear to be colored by caramel.

Very respectfully,
WILLIS G. TUCKER,
Director

Sept. 5. Received sample of water from T. L. Stone, steward, Craig colony, Sonyea. Reported on September 15.

Sept. 5. Received two samples of water from U. H. Merserau, clerk of the board of health, Union. Reported on September 15.

Sept. 6. Received two samples of water and one sample of "refuse taken from service pipe," Keeseville water supply, from Hon. C. W. Adams, C. E. Reported on waters September 15.

Sept. 7-9. T. J. Bradley visited Syracuse and purchased 23 samples of food articles for examination.

Sept. 11. Received sample of water from Dr. H. Eugene Smith, health officer, Mt. Vernon. Reported on September 15.

Sept. 11. T. J. Bradley purchased in Albany seven samples of food articles for examination.

Sept. 18. Received from Dr. J. O. Randall, Silver Springs, six samples of water. Reported on October 2.

Sept. 23. Received sample of water from Hon. Thomas Newbold, Hyde Park. Reported on October 2.

Sept. 26. Received sample of water from Dr. F. H. Green, health officer, Homer. Reported on October 2.

Oct. 6. Received seven samples of water from Dr. E. Oliver, health officer, Ancram. Reported on October 13.

Oct. 7. Received two samples of water from Dr. J. S. Bird, health officer, Hyde Park. Reported on October 13.

Oct. 18. Reported as follows on examination of sediment from water pipes at Keeseville:

ALBANY, *October* 18, 1899

Dr. B. T. SMELZER, *Secretary State Board of Health, Albany:*

Dear Sir—Referring to your communication of September 25 enclosing a copy of a letter from Hon. C. W. Adams relating to a "sample of refuse taken from service pipe at the house of Dr. Barber, Keeseville, August 25, 1899," of which an analysis was advised, I would say that an examination of the same has been made which is thought to throw some light upon the matter in question. Mr. Adams' letter, and another from him to me under date of September 20, stated that he desired, if possible, to ascertain whether the sediment occurring in water pipes at Keeseville, such as was submitted to me, results from the "refuse liquor from the mill" which "is discharged into the river" by the pulp mill above Keeseville, or from other processes employed in the mill which might contaminate the water, the mill referred to being stated to be one in which wood pulp is made "of spruce wood by the sulphite process."

The material submitted to me was a thick gelatinous substance of dark brown color and peculiar aromatic odor. It had a neutral reaction. On evaporation it yielded 3.31 per cent of solids, of which 1.34 per cent consisted of organic and vegetable matter and 1.97 per cent of mineral matter. During the ignition of the residue obtained on evaporation it evolved an odor resembling that of burning leaves or straw, and the residue after ignition was nearly insoluble in water and yielded no appreciable trace of sulphates on extraction with water. But for the purpose of determining whether sulphur was present in combination with the organic matter as a result of the action of the bi-sulphite upon the woody constituents, which action results in very complicated chemical changes which cannot well be traced, a portion was fused with a mixture of pure sodium carbonate and potassium nitrate, each of which was free from any sulphur-con-

taining compounds, and the residue extracted with hot water, and it showed the presence of sulphuric acid (as sulphates) in decided quantity. It may be said to be *possible*, but it does not appear to me at all *probable* that the sulphur thus shown to be present in the material examined, had some other source than the discharge from the mill, and, in my opinion, the fact of its presence, taken in connection with the information furnished me by Mr. Adams, and based upon his inspection, and the information furnished by the analyses of the samples of water from Wilmington and from Keeseville, sent to me with the sample of deposit and previously reported upon seem to me clearly to indicate that a connection exists between the discharges into the river from the mill and the formation of the sediments complained of in the water pipes at Keeseville. It would seem entirely reasonable to suppose that this gelatinous material, containing, as it does, sulphur in some form of combination, has resulted, in part at least, from the action of the acid sulphite employed, upon the organic matter of the wood, some of which matter, in complicated forms, is separated from the cellulose or fibre in the manufacture of the pulp by such processes as are said to be employed in this case.

In England, where esparte and other vegetable fibre is largely disintegrated by the action of caustic soda, instead of acid sulphites, the waste liquors were formerly discharged into streams, but since the passage of the Rivers pollution act of 1876 the soda is recovered by evaporation and incineration, and this recovery is stated to have been found to be highly remunerative.

The samples of water which accompanied the sample of sediment, and of which the results of the analyses were reported on September 15, may be again referred to in this connection. One was taken from the west branch of the Ausable river at Wilmington, some distance above the pulp mill, and the other from the flume opposite the intake of the pumps at Keeseville. The first had a light greenish-yellow tint and was free from turbidity and yielded but a trifling sediment. The second had a decided brownish tint and a slight turbidity and sediment. The first had no odor and the second a slight odor. Neither contained much chlorine, indicating comparative freedom from sewage pollution, but the second contained slightly more than the first. Of albuminoid ammonia, resulting in this case doubtless from organic matter of vegetable origin, the second sample yielded nearly twice as much as the first. Of total solids the first sample contained but 5.40 parts per 100,000, of which 3.60 consisted of organic and vegetable matter, while the second contained 23.20 parts, of which 16.20 consisted of organic and volatile matter, and the solid residue obtained on evaporation of the water in this case turned black and evolved a strong odor on ignition.

Therefore, taking into consideration all the facts, it seems to me that we are justified in coming to the conclusion before stated, that the sediment found in the service pipes at Keeseville is probably due, in part at least, to the discharge of waste liquors or other material from the pulp mill into the river above that place.

Very respectfully,

WILLIS G. TUCKER,
Director

October 20. Received sample of water from Dr. F. T. Cochran, health officer, Hudson. Reported on October 30.

October 23. Received from office of Board a sample of bread covered in part with a pink mould for examination and reported on same as follows:

ALBANY, *October* 25, 1899

B. T. SMELZER, *Secretary State Board of Health, Albany:*

Dear Sir—On the 23d instant I received from your office a portion of a loaf of bread, said to be known as "Sweet home bread" and to be manufactured in Lansingburg, and to have been purchased from C. B. Kiernan of this city. It was partially covered by a thick salmon-colored mould which is said to have appeared upon it "within a few hours after purchase," the bread having been placed, as stated, in "a dry tin box."

Moulds are fungi and each develops from its own specific spores, with varying rapidity under varying conditions, but warmth and moisture favor their development. In this instance it is entirely improbable that anything in the bread was the cause of the mould, and hence its appearance cannot be regarded as evidence of any fault in the bread, or the materials of which it was made. I have submitted it to Professor Peck, state botanist, for identification, and he writes me as follows concerning it:

"The fungus on sample of bread left for identification is referable to *Monilia sitephila* (Mont.) Sass., which name may be interpreted the *bread-loving monilia.* It is a relative of *Monilia fructigena*, Pers., which is one of the most destructive species we have, destroying especially peaches, cherries and plums, even while yet hanging on the tree, and often attacking apples, pears and quinces, if there is any break in the skin through which the spores can get access to the flesh. The species before us sometimes attacks piles of wheat as well as bread."

Professor Peck agrees with me that the mould is in itself harmless though unsightly. Of course mouldy food would not ordinarily be eaten, nor would it generally be advisable to do so. In

a suitable environment, and if the spores be present, such growths often occur upon bread, cheese and other foods, and there is no reason to suppose that the quality of the article has anything to do with their development. It seems to me unlikely that this developed as rapidly as stated by the purchaser, but this is a matter of little importance.

Very respectfully,
WILLIS G. TUCKER,
Director

October 24. Received sample of water from Dr. E. L. Fox, health officer, Lexington. Reported on October 30.

October 27. Received sample of water from Dr. W. T. Shaw, health officer, Voorheesville. Reported on November 4.

October 27. Received sample of water from Dr. E. A. Simonds, health officer, Carthage. Reported on November 4.

November 4. Received sample of water from Dr. F. M. Perine, health officer, Dansville. Reported on November 11.

November 16. Appeared in response to subpoena before the committee on manufactures, U. S. Senate, Hon. William E. Mason, chairman, and gave evidence concerning food adulteration and the results of work done in this state and other matters under investigation by the committee.

December 8-11. Purchased in Albany 25 samples of substances sold for coloring food products for examination with view to making report upon the same pursuant to the provisions of chapter 518, laws of 1899.

December 11. Received two samples of water from Dr. F. M. Perine, health officer, Dansville. Reported on December 16.

December 13. Visited Lockport and was present at trial of a suit brought against the board of health of Niagara Falls for closing a well which had been condemned by the board.

December 20. Received a sample of water from Dr. P. D. Carpenter, health officer, Pittsford. Reported on December 23.

December 31. Reported on the examination of 181 samples of drugs and food as follows:

During the months of July, August and September there were collected in Brockport, Albion, Medina, Lockport, Niagara Falls, Syracuse and Albany, 181 samples of drugs and food. The ex-

amination of these samples has been completed and a summary of the results obtained is given below. Of these samples there were of good or fair quality, 133, and of inferior quality, or, in case of drugs, varying materially from the pharmacopœial standard, 48, but it is to be borne in mind that in the main such articles were chosen as experience has shown are likely to be of unsatisfactory quality. I am decidedly of opinion that there has been a marked improvement during recent years in the quality of the drugs and most of the medicinal preparations sold in the drug stores of this state, and believe this to be the case with many of the commoner and more important food articles also, and I think that the publicity given in our reports to the results of the examinations which we have made is, in large measure, responsible for this improvement. The following is a summary of the articles examined:

Article	Good or fair	Inferior
Tincture of opium	5	0
Distilled water	2	5
Ether	2	7
Creosote	8	2
Tincture of iodine	8	1
Ammonia water	2	8
Solution of hydrogen dioxide	10	0
Diluted acetic acid	4	6
Olive oil	4	6
Resorcin	8	0
Syrup of ferrous iodide	4	4
Bismuth sub-nitrate	10	0
Acetanilid	9	0
Reduced iron	7	1
Salol	7	0
Spirit of nitrous ether	6	2
Syrup of hydriodic acid	4	1
Potassium bi-tartrate	15	5
Coffee	6	0
Tomato catsup	6	0
Granulated sugar	6	0
Total	133	48

Comments on above results: It is gratifying to observe that all the samples of tincture of opium are sufficiently near to the pharmacopoeial standard to be rated as good or fair. Distilled water is very generally of unsatisfactory quality, common tap water being often dispensed. The large number of samples of

inferior ether is due to the fact that common ether is often sold when "ether" is called for, although this is the present pharmacopœial designation of the article known in the pharmacopœia of 1880 as "stronger ether." Ammonia water loses strength rapidly and is often of unsatisfactory quality as dispensed. Syrup of ferrous iodide is liable to change by exposure and is often of a quality which does not comply with the pharmacopœial requirements. The inferior samples of potassium bi-tartrate were purchased in grocery stores. That obtained in drug stores is almost invariably of good quality. The coffee samples were unground and of various qualities, but none of them contained any actual adulterant. Of the tomato catsups two contained salicylic acid, and three contained benzoic acid, as a preservative. In but one sample was no preservative discovered. As it is a question whether such addition is a violation of any existing law in this state in the case of this article, I have classed all the samples as good or fair. We notice a decided improvement in the quality of the following articles as compared with samples of the same articles collected and examined a few years since, and believe this to be due to the publication of previous results; tincture of iodine, creosote, solution of hydrogen di-oxide, reduced iron, and spirit of nitrous ether.

The accompanying tables give the name and place of business of all dealers from whom samples of food or drugs have been collected and the results of the examination of such samples. Concerning methods of analysis in the case of drugs it may be said that, as only official (pharmacopœial) articles have been collected, and the standard of quality prescribed by the Pharmacopœia being the legal standard to which articles included therein must conform, the pharmacopœial tests and analytical processes have been generally followed. While exhaustive analyses have not generally been necessary, at least one quantitive determination has been made in most cases. The examination has been sufficient in each instance to determine whether the article deviated materially from the pharmacepoeial standard, and more than this has seldom been required. Samples have been classed as of "good quality" when they fulfill the requirements of the United States Pharmacopœia or fall below the same, only in some trifling and unimportant respect; or "fair quality" if, while not fully up to the pharmacopœial standard, they are evidently neither intentionally adulterated nor decidedly below such stand-

ard, and of "inferior quality," if clearly adulterated or falsified, lacking in any important constituent, deficient in strength from improper manufacture, partial or complete decomposition or other causes, or containing an undue amount of impurity. If in some cases, through ignorance or intent, a wrong article has been sold or some inferior article of a nature similar to that called for has been substituted, such samples have been classed under the head "not as called for." Articles like the diluted acids, possessing excessive strength, have been classed under that head.

The following were the articles examined:

Acetanilid. (*Acetanilidum, U. S. P.*)

An acetyl derivative of anilin. Nine samples examined, all of which are of good quality, as follows:

Number of sample	Date of collection	OF WHOM PURCHASED	Where purchased	Quality
	1899			
10616	July 6	James E. Patten	Brockport	Good
10617	6	J. H. Sweet	Albion	do
10618	6	C. M. Topliff	Medina	do
10619	7	F. K. Sweet	Lockport	do
10620	7	George W. Weaver	do	do
10621	7	Faxon, Williams & Faxon	do	do
10622	8	Croy's drug store	Niagara Falls	do
10623	8	Faxon, Williams & Faxon	do	do
10624	8	Vorwerk & Lauries	do	do

Bismuth subnitrate. (*Bismuthi subnitras, U. S. P.*)

Ten samples examined, of which one was of good and nine of fair quality, as follows:

Number of sample	Date of collection	OF WHOM PURCHASED	Where purchased	Quality
	1899			
10606	July 6	James E. Patten	Brockport	Fair.
10607	6	J. H. Sweet	Albion	do
10608	6	C. M. Topliff	Medina	do
10609	7	F. K. Sweet	Lockport	do
10610	7	Standish & Shearston	do	do
10611	7	Faxon, Williams & Faxon	do	do
10612	8	Croy's drug store	Niagara Falls	Good.
10613	8	Faxon, Williams & Faxon	do	Fair.
10614	8	South Avenue pharmacy	do	do
10615	8	Vorwerk & Laurier	do	do

Tincture of capsicum. (*Tinctura capsici, U. S. P.*)

Nine samples examined and all of satisfactory quality, as follows:

Number of sample	Date of collection	OF WHOM PURCHASED	Where purchased	Quality
	1898			
10494	September 15	W. B. Bissell	Syracuse	Good.
10495	15	Yates pharmacy	do	do
10496	25	W. W. Haviland	Geneva	do
10497	26	Gould drug co	Seneca Falls	do
10498	26	T. B. Sharp & son	do	do
10499	27	Chas. H. Sagar co	Auburn	do
10500	28	William Blaikie	Utica	do
10501	28	Chas. F. Stewart	do	do
10502	28	Howarth & Ballard	do	do

Chloroform. (*Chloroformum, U. S. P.*)

Seven samples examined, of which all were of satisfactory quality. The pharmacopœia requires a specific gravity not below 1.490 at 15 degrees C. (59 degrees F.) The samples examined varied from 1.486 to 1.494. The quality of the chloroform now on sale is greatly superior to that formerly on the market. The following table gives particulars concerning the samples:

Number of Sample	Date of collection	OF WHOM PURCHASED	Where purchased	Specific gravity at 15 degrees Cent.	Quality
	1898				
10425	September 15	George E. Thorpe	Syracuse	1.488	Good.
10426	15	P. L. Ryan co	do	1.487	do
10427	25	A. L. Sweet, M. D.	Geneva	1.487	do
10428	26	P. Van Kleeck	Seneca Falls	1.490	do
10429	27	F. L. Remington	Auburn	1.486	do
10430	27	Frederick Osborn	do	1.494	do
10431	28	A. S. Evans & co	Utica	1.493	do

Creosote. (*Creosotum, U. S. P.*)

Sixteen samples examined. Creosote is defined in the pharmacopœia as "a mixture of phenols, chiefly guaiacol and creosol, obtained during the distillation of wood tar, preferably of that derived from the beech." Crude carbolic acid, sometimes designated in the trade "coal-tar creosote," and consisting chiefly of phenol and creosol, is often sold for real creosote because much cheaper, but the substitution should not be made, as the articles possess different properties, and when creosote is called for, the true article should be supplied. Of the samples examined 10 were good, and 2 were of fair quality, while the remaining 4 consisted chiefly of carbolic acid, as shown in the following table:

Number of sample	Date of collection	OF WHOM PURCHASED	Where purchased	Quality
	1898			
10443	September 15	Rufus E. Smith	Syracuse	Consists largely of carbolic acid; error in sale.
10444	25	A. L. Sweet, M. D	Geneva	Good.
10445	26	P. Van Kleeck	Seneca Falls	do
10446	27	Frederick Osborn	Auburn	Fair.
10447	28	J. B. Mc Millan	Utica	Consists largely of carbolic acid; error in sale.
10448	28	H. A. Plumb	do	Good.
	1899			
10550	July 6	E. W. Briggs	Brockport	do
10551	6	C. M. Burrows, M. D	Albion	Consists chiefly of carbolic acid; error in sale.
10552	6	F. A. Shelley	Medina	Good.
10553	7	W. J. Huntley	Lockport	Fair.
10554	7	J. B. Hartwell & son	do	Good.
10555	7	Zimmerman's pharmacy	do	do
10556	8	Mahoney's International pharmacy	Niagara Falls	do
10557	8	George H. Salt & co	do	Consists chiefly of carbolic acid; error in sale.
10558	8	Edwin J. Cole	do	Good.
10559	8	Stine & Duffy	do	do

Ether. (*Aether, U. S. P.*)

The U. S. Pharmacopœia of 1890, which went into effect January 1, 1894, recognizes but one quality of ether and this is essentially identical with the "stronger ether," or *Aether Fortior*, of the Pharmacopœia of 1880. It is composed of "about 96 per cent, by weight of absolute ether or ethyl oxide, and about 4 per cent, of alcohol containing a little water." It should have a specific gravity of from 0.725 to 0.728 at 15 degrees C. (59 degrees F.) or 0.714 to 0.717 at 25 degrees C. (77 degrees F.) Some confusion has resulted from the change in nomenclature, but the pharmacist ought to be informed upon these subjects and know that the "aether" of the present pharmacopœia practically corresponds to the "aether fortior" of the preceding one. The term "sulphuric ether" is not recognized in the pharmacopœia. Ether is generally used as an anaesthetic, and ought always to be kept in stock by the pharmacist. When it is called by its official name it ought to be supplied, and the substitution of ether of inferior quality, or the so-called "washed ether" of the trade, is inexcusable, and betokens carelessness or ignorance.

Fourteen samples were examined, of which there were of good quality, 2; fair, 1; inferior, 11. The specific gravity of the samples examined varied from 0.716 to 0.765. Particulars concerning the samples are appended.

Number of sample	Date of collection	OF WHOM PURCHASED	Where purchased	Specific gravity at 15 degrees Cent.	Quality
	1898				
10432	September 15	Rufus E. Smith	Syracuse	0.756	Inferior.
10433	25	W. O. Neely	Geneva	0.765	do.
10434	26	T. B. Sharp & son	Seneca Falls	0.742	do.
10435	27	M. L. Walley & co.	Auburn	0.726	Good.
10436	28	J. B. McMillan	Utica	0.751	Inferior.
	1899				
10522	July 6	E. W. Briggs	Brockport	*0.737	do.
10523	6	C. M. Burrows, M. D.	Albion	*0.737	do.
10524	6	Charles A. Mack	Medina	*0.741	do.
10525	7	J. B. Hartwell & son	Lockport	*0.736	do.
10526	7	John T. Smith	do.	*0.750	do.
10527	8	Mahoney's International pharmacy	Niagara Falls	*0.716	Good.
10528	8	George H. Salt & co	do.	*0.742	Inferior.
10529	8	T. H. Wallis	do.	*0.726	Fair.
10530	8	W. D. Corson	do.	*0.736	Inferior.

* Taken at 25 degrees C.

Compound spirit of ether. (*Spiritus actheris compositus, U. S. P.*)

Six samples examined all of which were of inferior quality. Concerning this article, which is a medicinal substance of real value, but the use of which has been largely abandoned because so generally of little or no real value as sold in the stores, I quote from a previous report: "Compound spirit of ether or 'Hoffman's anodyne' is both prescribed by physicians and employed as a household remedy, and while an article of good quality can be procured from responsible manufacturers, or prepared without difficulty by the intelligent and careful pharmacist, the fact is that a spurious article, answering to none of the requirements of the Pharmacopœia, is generally sold in its stead, because it is cheaper. This cheap and worthless article, obtained as a secondary product in the manufacture of ether, consists chiefly of alcohol, ether and water, with little or none of the ethereal oil upon which the virtue of the preparation largely depends. Dealers may urge that the sale of this article as a household remedy to people who would complain of the price necessarily charged for a genuine article is excusable; but without admitting this as a valid excuse for dispensing a worthless drug, it is evident that its sale in response to a physician's prescription or written order, giving full title and specifying 'U. S. P.,' is inexcusable and unwarranted. The habit of keeping two qualities of official drugs can not be too strongly condemned, but the results of our examinations show that many dealers, so far as this preparation is concerned, keep only one, and that a spurious article. When official preparations are called for they should be furnished by the dealer, or no sale made."

The specific gravity of this preparation is not stated in the Pharmacopœia, but it should be not far from 0.800. As made by the process laid down in the Pharmacopœia of 1870, in which ether of higher gravity was employed and more of the ethereal oil was used, it had a specific gravity of 0.815, but the specific gravity alone is no criterion of quality. The specific gravity of the samples examined varied from 0.808 to 0.909. The following table gives particulars concerning the samples:

Number of sample	Date of collection	OF WHOM PURCHASED	Where purchased	Specific gravity at 15 degrees Cent.	Quality
	1898				
10437	September 15	P. L. Ryan drug co	Syracuse	0.892	Deficient in ethereal oil; inferior.
10438	25	Weld drug co	Geneva	0.867	Deficient in ethereal oil; inferior.
10439	26	Central drug store	Seneca Falls	0.837	Deficient in ethereal oil; inferior.
10440	27	F. L. Remington	Auburn	0.909	Deficient in ethereal oil; inferior.
10441	27	Frank S. Smith	Auburn	0.829	Deficient in ethereal oil; inferior.
10442	28	A. S. Evans & co	Utica	0.808	Deficient in ethereal oil; inferior.

Syrup of ferrous iodide. (*Syrupus ferrii iodidi U. S. P.*)

According to the directions of the Pharmacopœia this preparation should contain "about 10 per cent by weight of ferrous iodide." Eight samples were examined and the percentage of iodide determined by the pharmacopœial method. Of the 8 samples examined 3 were rated as of good; 1 as fair; and 4 of inferior quality. Particulars concerning the samples are appended.

Number of sample	Date of collection	OF WHOM PURCHASED	Where purchased	Per cent of ferrous iodide	Quality
	1899				
10598	July 6	James E. Patten	Brockport	2.00	Inferior.
10599	6	Clarke drug & book co.	Albion	4.70	do
10600	6	C. M. Topliff	Medina	5.70	do
10601	7	F. K. Sweet	Lockport	3.80	do
10602	7	Standish & Shearston	do	9.50	Good.
10603	7	Faxon, Williams & Faxon	do	7.60	Fair.
10604	8	Croy's drug store	Niagara Falls	9.80	Good.
10605	8	Niagara pharmacy	do	9.90	do

Syrup of hydriodic acid. (*Syrupus acidi hydriodici, U. S. P.*)

This should contain "about 1 per cent by weight or absolute hydriodic acid." Samples containing less than 0.65 per cent are classed as inferior; from 0.65 to 0.80, fair; from 0.81 to 1.25, good; and over 1.25 excessive strength. Of the 5 samples examined there were of good quality, 4; and inferior, 1. The samples varied in strength from 0.59 to 1.18 per cent. Particulars concerning these samples are appended.

Number of sample	Date of collection	OF WHOM PURCHASED	Where purchased	Per cent. of hydriodic acid	Quality
	1899				
10648	July 6	Charles A. Mack	Medina	0.59	Inferior.
10649	7	Wayman's pharmacy	Lockport	1.17	Good.
10650	7	George W. Weaver	do	1.17	do
10651	8	O'Loughlin's pharmacy	Niagara Falls	1.18	do
10652	8	T. H. Wallis	do	1.18	do

Diluted hydrochloric acid. (*Acidum hydrochloricum dilutum, U. S. P.*)

Six samples examined, of which there were of good quality, 3, and fair 3. The Pharmacopœia requires 10 per cent of the abso'ute acid and the same for diluted hydrobromic, nitric, phosphoric and sulphuric acids. In rating these acids those containing from 9 to 12.5 per cent have been classed as good; 7.5 to 8.9, fair; below 7.5, inferior, and over 12.5 excessive strength. These samples varied from 8.1 to 12.2 per cent. Particulars concerning the samples are appended.

Number of sample	Date of collection	OF WHOM PURCHASED	Where purchased	Per cent of absolute acid	Quality
	1898				
10454	September 15	P. L. Ryan drug co	Syracuse	8.1	Fair.
10455	25	Weld drug co.	Geneva	9.6	Good.
10456	26	Central drug store,	Seneca Falls	8.3	Fair.
10457	27	F. L. Remmington	Auburn	10.4	Good.
10458	27	Chas. H. Sagar co	do	12.2	do
10459	27	Frank S. Smith	do	8.3	Fair.

Solution of hydrogen dioxide. (*Aqua hydrogenii dioxidi, U. S. P.*)

Ten samples examined. This preparation, at the present time quite largely used in medicine, was added to the Pharmacopœia at its last revision. It is defined therein as "a slightly acid, aqueous solution of hydrogen dioxide, containing, when freshly prepared, about three per cent, by weight, of the pure dioxide, corresponding to about 10 volumes of available oxygen." Samples yielding from 8.5 to 13 volumes of available oxygen have been rated as good; from 7 to 8.4 as fair; under 7 as inferior, and over 13 as of excessive strength. Of the 10 samples examined there were of good quality 9; and of excessive strength, but rated as good, 1. The samples varied in available oxygen from 8.57 to 18.48, equivalent to 2.60 and 5.61 per cent, respectively, of absolute hydrogen dioxide. Particulars concerning the samples are appended.

Number of sample	Date of collection	OF WHOM PURCHASED	Where purchased	Per cent of absolute hydrogen dioxide	Volumes of available oxygen	Quality
	1899					
10560	July 6	Thomas H. Dobson	Brockport	3.08	10.14	Good.
10561	6	Clarke drug & book co	Albion	5.61	18.48	Of good quality, but stronger than pharmacopœial requirement.
10562	6	F. A. Shelley	Medina	3.57	11.76	Good.
10563	7	W. J. Huntley	Lockport	3.43	11.31	do
10564	7	J. B. Hartwell & son	do	2.87	9.46	do
10565	7	Zimmerman's pharmacy	do	2.81	9.24	do
10566	8	Mahoney's International pharmacy	Niagara Falls	2.60	8.57	do
10567	8	Niagara pharmacy	do	3.54	11.65	do
10568	8	Edwin J. Cole	do	3.37	11.09	do
10569	8	Stine & Duffy	do	3.25	10.70	do

Tincture of iodine. (*Tinctura iodi, U. S. P.*)

Nine samples examined. The formula for the preparation of this important article was changed in the last revision of the Pharmacopœia, but its strength remains not very different. It formerly contained 8 per cent of iodine and now contains 7 grams in 100 cubic centimeters of alcohol. Of the 9 samples examined there were of good quality, 2; fair, 6; inferior, 1. Samples containing from 6 to 9 grams of iodine in 100 cubic centimeters have been rated as of good quality; from 5 to 6, fair quality; under 5, inferior quality; and over 9, excessive strength. The samples examined varied from 4.34 to 6.24 grams of iodine in 100 cubic centimeters. Particulars concerning the samples are appended.

Number of sample	Date of collection	OF WHOM PURCHASED	Where purchased	Grams of iodine in 100 c. c.	Quality
	1899				
10531	July 6	E. W. Briggs	Brockport	5.53	Fair.
10532	6	C. M. Burrows, M. D.	Albion	6.24	Good.
10533	6	F. A. Shelley	Medina	5.73	Fair.
10534	7	J. B. Hartwell & son	Lockport	6.20	Good.
10535	7	John T. Smith	do	5.14	Fair.
10536	8	Mahoney's International pharmacy	Niagara Falls	5.23	do
10537	8	George H. Salt & co	do	5.14	do
10538	8	T. H. Wallis	do	4.34	Inferior.
10539	8	W. D. Corson	do	5.48	Fair.

Reduced iron. (*Ferrum reductum, U. S. P.*)

Eight samples examined, of which five were of good quality, two fair and one inferior. Concerning this article I quote from a previous report: "This preparation is seldom or never found in our stores of the quality required by the Pharmacopœia. A well known firm of manufacturers quote in their list three grades; one, said to contain 80 per cent, and entitled "U. S. P."; another, 65 per cent, and a third, designated as "black," 50 per cent. The real article should have a grayish-black color, but pharmacists assure me that many physicians prefer it black and that such a preparation has to be supplied. If such articles are to be sold physicians should clearly understand their nature. Such sales are, however, in my opinion entirely unjustifiable. Pharmacists can not with propriety urge that such "black irons" are sold not as U. S. P. but as "Quevenne's iron," or by some other trade name; for since the Pharmacopœia defines the quality and sets a standard the article should conform to this standard. In rating these samples I have not been unmindful of the fact that it is difficult to manufacture and preserve reduced iron, conforming to the pharmacopœial requirements, and have classed as good those samples yielding 70 per cent or upwards of metallic iron, and as fair those yielding 60 to 70 per cent, so that only those falling below 60 per cent, have been reported as inferior. Reduced iron is chiefly manufactured in Germany, and generally is made, as I am informed, by igniting the oxalate and not by reducing the oxide in hydrogen. This process leaves a certain amount of finely divided carbon in the product, imparting to it a black color. Whether in addition to this carbon in any form is intentionally added to the preparation, I am unable to state. In this case pharmacists are not so much to blame as are the manufacturers, and yet they are legally responsible for the quality of the article they dispense." Particulars concerning the samples are appended.

Number of sample	Date of collection	OF WHOM PURCHASED	Where purchased	Per cent of metallic iron	Quality
	1899				
10625	July 6	James E. Patton	Brockport	69.0	Fair.
10626	6	J. H. Sweet	Albion	99.0	Good.
10627	7	F. K. Sweet	Lockport	43.0	Inferior.
10628	7	George W. Weaver	do	80.0	Good.
10629	7	Faxon, Williams & Faxon	do	71.0	do
10630	8	O'Loughlin's pharmacy	Niagara Falls	76.0	do
10631	8	Faxon, Williams & Faxon	do	62.0	Fair.
10632	8	Verwerk & Laurier	do	91.0	Good.

Spirit of nitrous ether. (*Spiritus ætheris nitrosi, U. S. P.*)

Eight samples examined, of which there were of good quality, 2; fair, 4, and inferior, 2. The Pharmacopœia defines the preparation as "an alcoholic solution of ethyl nitrite, yielding when freshly prepared and tested in a nitrometer not less than 11 times its own volume of nitrogen dioxide (corresponding to about 4 per cent of pure ethyl nitrite.)" This useful artice is fast falling into disrepute because so often carelessly prepared or improperly preserved, so that it is of insufficient strength when dispensed. Even when carefully kept it loses strength quite rapidly, and in taking the samples tested allowance was made for this fact. Samples yielding from 3.50 to 5.50 per cent are classed as of good quality; from 2.50 to 3.50, fair, and below 2.50 inferior. Particulars concerning the samples are appended.

Number of sample	Date of collection	OF WHOM PURCHASED	Where purchased	Per cent of ethyl nitrite	Quality
	1899				
10640	July 6	Frank & Kirby	Albion	2.87	Fair.
10641	6	J. H. Sweet	do	2.18	Inferior.
10642	6	F. L. Zimmerman	Medina	2.83	Fair.
10643	7	Wayman's pharmacy	Lockport	0.63	Inferior.
10644	7	George W. Weaver	do	2.62	Fair.
10645	8	O'Loughlin's pharmacy	Niagara Falls	3.24	do
10646	8	W. D. Corson	do	4.99	Good.
10647	8	Harrington brothers	do	3.94	do

Olive oil. (*Oleum olivæ, U. S. P.*)

Ten samples examined by the pharmacopœial tests, of which 4 were good and 6 were rated as of doubtful purity, as follows:

Number of sample	Date of collection	OF WHOM PURCHASED	Where purchased	Quality
	1899			
10580	July 6	Thomas H. Dobson	Brockport	Doubtful.
10581	6	Clarke drug & book co	Albion	Good.
10582	6	C. M. Topliff	Medina	Doubtful.
10583	7	W. J. Huntley	Lockport	Good.
10584	7	Standish & Shearston	do	Doubtful.
10585	7	Zimmerman's pharmacy	do	do
10586	8	Croy's drug store	Niagara Falls	do
10587	8	Niagara pharmacy	do	do
10588	8	Edwin J. Cole	do	Good.
10589	8	Stine & Duffy	do	do

Tincture of opium [Laudanum]. (*Tinctura opii, U. S. P.*)

The U. S. P. requires that if 100 cubic centimeters be assayed by the official process it should yield from 1.3 to 1.5 grams of crystalized morphine. Five samples were examined, of which 2 were of good and 3 of fair quality, as follows:

Number of sample	Date of collection	OF WHOM PURCHASED	Where purchased	Grams of morphine from 100 c. c.	Quality
	1899				
10510	July 6	E. W. Briggs	Brockport	1.3986	Good.
10511	6	Frank & Kirby	Albion	1.1450	Fair.
10512	6	Chas. A. Mack	Medina	1.3084	Good.
10513	7	Wayman's pharmacy	Lockport	1.0809	Fair.
10514	7	John T. Smith	do	1.0502	do

Diluted phosphoric acid. (*Acidum phosphoricum dilutum, U. S. P.*)

This preparation should contain 10 per cent by weight of absolute orthophosphoric acid. In rating these samples the same standards have been employed as for diluted hydrochloric acid, which see. Five samples were examined, of which there were of good quality, 4; and inferior 1. The samples varied in strength from 2.5 to 10.8 per cent. Particulars concerning the samples are appended.

Number of sample	Date of collection	OF WHOM PURCHASED	Where purchased	Per cent of absolute acid	Quality
	1898				
10449	September 15	Rufus E. Smith	Syracuse	10.8	Good.
10450	25	W. O. Neely	Geneva	10.2	do
10451	26	T. B. Sharp & son	Seneca Falls	2.5	Inferior.
10452	27	M. L. Walley & co	Auburn	10.3	Good.
10453	28	J. B. McMillan	Utica	10.6	do

Potassium bitartrate. (*Potassii bitartras, U. S. P.*) "*Cream of tartar.*"

This familiar household article and medicinal agent is generally, as sold in grocery stores, either entirely fictitious or largely adulterated. In 1891, 153 samples, purchased from retail grocers, were examined, and of these samples but 55, or 28 per cent of the total, were found to consist of real and unadulterated cream of tartar. In the report for that year it was stated that previous investigations had shown that "a pure article is almost invariably sold by druggists." The results now reported confirm this statement, for all of the 15 samples purchased of druggists were found to be of good quality, while of the 12 samples purchased from grocers 5 were adulterated or spurious. Twenty-seven samples in all were examined and particulars concerning them are appended.

Number of sample	Date of collection	OF WHOM PURCHASED	Where purchased	Quality
	1898			
10467	September 15	Geo. E. Thorpe	Syracuse	Good.
10468	15	P. L. Ryan drug co	do	do
10469	25	Weld drug co	Geneva	do
10470	26	P. Van Kleeck	Seneca Falls	do
10471	27	F. L. Remington	Auburn	do
10472	27	Frederick Osborn	do	do
10473	28	A. S. Evans & co	Utica	do
	1899			
10653	July 6	Frank & Kirby	Albion	do
10654	6	Charles A. Mack	Medina	do
10655	6	F. L. Zimmerman	do	do
10656	7	Wayman's pharmacy	Lockport	do
10657	7	Harrington brothers	do	do
10658	8	O'Loughlin's pharmacy	Niagara Falls	do
10659	8	T. H. Wallis	do	do
10660	8	W. D. Corson	do	do
10661	September 8	Columbia market (grocery)	Syracuse	Contains calcium sulphate. Acidity equivalent to 82% cream of tartar. Inferior.
10662	8	John H. Mann & co. (grocery)	do	Contains calcium sulphate. Acidity equivalent to 81% cream of tartar. Inferior.
10663	8	Walrath's cash store (grocery)	do	Good.

Potassium bitartrate. (*Potassii bitartras, U. S. P.*) "*Cream of tartar.*" —(Concluded.)

Number of sample	Date of collection	OF WHOM PURCHASED	Where purchased	Quality
	1899			
10664	September 8	Moore & Pendergast (grocery)	Syracuse	Good.
10665	8	M. A. Andrews (grocery)	do	do
10666	8	John H. Phillips (grocery)	do	Contains calcium acid phosphate, tartaric acid and starch. Acidity equivalent to 96% cream of tartar. Fictitious.
10667	11	J. C. Rehlaender (grocery)	Albany	Good.
10668	11	Franklin M. Jones (grocery)	do	do
10669	11	Brucker brothers (grocery)	do	Contains calcium acid phosphate, tartaric acid and starch. Acidity equivalent to 100% cream of tartar. Fictitious.
10670	11	Adelbert Whitmore (grocery)	do	Good.
10671	11	I. R. Coughtry (grocery)	do	do
10672	11	N. S. Hoff (grocery)	do	Contains calcium sulphate. Acidity equivalent to 16% cream of tartar. Inferior.

Quinine sulphate. (*Quininæ sulphas, U. S. P.*)

Eight samples examined, of which there were of good quality 6, and of poor quality 2, as follows:

Number of sample	Date of collection	OF WHOM PURCHASED	Where purchased	Quality
	1898			
10486	September 15	W. B. Bissell	Syracuse	Good.
10487	15	Brown & Dawson	do	do
10488	25	Weld drug co	Geneva	do
10489	26	Gould drug co	Seneca Falls	do
10490	26	Central drug co	do	Fair.
10491	27	Chas. H. Sagar co	Auburn	Good.
10492	28	Howarth & Ballard	Utica	Fair.
10493	28	William Blaikie	do	Good.

Resorcin. (*Resorcinum, U. S. P.*)

This substance, known as metadioxybenzol, occurs in white crystals of a sweetest taste, freely soluble in water and alcohol. It has antiseptic properties, and is used in medicine both internally and externally. Eight samples were examined, all of which were of good quality, as follows:

Number of sample	Date of collection	OF WHOM PURCHASED	Where purchased	Quality
	1899			
10590	July 6	Thomas H. Dobson	Brockport	Good.
10591	6	Clarke drug & book co	Albion	do
10592	7	W. J. Huntley	Lockport	do
10593	7	Standish & Shearston	do	do
10594	8	Croy's drug store	Niagara Falls	do
10595	8	Niagara pharmacy	do	do
10596	8	Edwin J. Cole	do	do
10597	8	Vorwerk & Laurier	do	do

Quinine sulphate. (*Quininæ sulphas, U. S. P.*)

Eight samples examined, of which there were of good quality 6, and of poor quality 2, as follows:

Number of sample	Date of collection	OF WHOM PURCHASED	Where purchased	Quality
	1898			
10486	September 15	W. B. Bissell	Syracuse	Good.
10487	15	Brown & Dawson	do	do
10488	25	Weld drug co	Geneva	do
10489	26	Gould drug co	Seneca Falls	do
10490	26	Central drug co	do	Fair.
10491	27	Chas. H. Sagar co	Auburn	Good.
10492	28	Howarth & Ballard	Utica	Fair.
10493	28	William Blaikie	do	Good.

Resorcin. (*Resorcinum, U. S. P.*)

This substance, known as metadioxybenzol, occurs in white crystals of a sweetest taste, freely soluble in water and alcohol. It has antiseptic properties, and is used in medicine both internally and externally. Eight samples were examined, all of which were of good quality, as follows:

Number of sample	Date of collection	OF WHOM PURCHASED	Where purchased	Quality
	1899			
10590	July 6	Thomas H. Dobson	Brockport	Good.
10591	6	Clarke drug & book co	Albion	do
10592	7	W. J. Huntley	Lockport	do
10593	7	Standish & Shearston	do	do
10594	8	Croy's drug store	Niagara Falls	do
10595	8	Niagara pharmacy	do	do
10596	8	Edwin J. Cole	do	do
10597	8	Vorwerk & Laurier	do	do

Powdered rhubarb. (*Rheum, U. S. P.*)

Two samples examined, both of good quality, as follows:

Number of sample	Date of collection	OF WHOM PURCHASED	Where purchased	Quality
	1898			
10508	September 15	W. B. Bissell	Syracuse	Good.
10509	28	Howarth & Ballard	Utica	do

Tincture of rhubarb. (*Tinctura rhei, U. S. P.*)

Five examples examined, all of good quality, as follows:

Number of sample	Date of collection	OF WHOM PURCHASED	Where purchased	Quality
	1898			
10503	September 15	The Yates pharmacy	Syracuse	Good
10504	25	W. O. Neely	Geneva	do
10505	25	W. W. Haviland	do	do
10506	26	T. B. Sharp & son	Seneca Falls	do
10507	28	Chas. F. Stewart	Utica	do

Salol. (*Salol, U. S. P.*)

This body, the salicylic ether of phenol, or phenyl salicylat, is a white crystalline powder, odorless or having a faintly aromatic odor and almost tasteless. It is used as an antirheumatic or antipyretic agent. Seven samples were examined, and all are of good quality, as follows:

Number of sample	Date of collection	OF WHOM PURCHASED	Where purchased	Quality
	1899			
10633	July 6	Frank & Kirby	Albion	Good.
10634	6	J. H. Sweet	do	do
10635	7	F. K. Sweet	Lockport	do
10636	7	George W. Weaver	do	do
10637	8	O'Loughlin's pharmacy	Niagara Falls	do
10638	8	Faxon, Williams & Faxon	do	do
10639	8	South avenue pharmacy	do	do

Compound effervescing powder. (*Pulvis effervescens compositus, U. S. P.*) [*Seidlitz powder.*]

Concerning this familiar article I quote from a former report: "Seidlitz powders are often carelessly made and are sometimes intentionally manufactured of short weight. The use of metric units is prescribed in the present Pharmacopœia, but the weights of the constituents have not been changed, each blue paper containing 160 grains of the mixture of Rochelle salt and sodium bicarbonate and each white paper containing 35 grains of tartaric acid. These powders are frequently of inferior quality in that the proportion of Rochelle salt is often diminished, that of the cheaper sodium bicarbonate being increased, and they are often so carelessly made, the constituents being generally measured and not weighed, that a very uncertain chemical result is obtained on dissolving and mixing the contents of the papers. Some years ago I made careful analyses of 70 powders purchased in different stores and found that while the weights of both the acid and the seidlitz mixture showed a great diversity, being in some instances less than half and in others twice the correct weights, the average weights were not far from correct, but the ratio of Rochelle salt to soda in the mixture was, in at least a third of the samples, too low to be explained, save by intentional decrease. The official proportions are almost precisely those required by theory to secure perfect neutralization of the tartaric acid by the sodium bicarbonate, and it will readily be seen that if these proportions vary materially a very different and by no means satisfactory result will be obtained. A manufacturing firm has advertised in the pharmaceutical journals seidlitz powders called 'regular,' containing but 2 drachms instead of 2 drachms and 2 scruples of the seidlitz mixture in the blue paper, which is exactly 25 per cent short weight. These powders are advertised at a price $2 a gross less than that charged by the same firm for 'full weight' powders, giving those druggists who desire to buy cheap goods without regard to quality, an opportunity to effect a small saving." Five samples were examined, of which 2 were of good and 3 of fair weight and quality. Unless the ratio of the constituents which is prescribed by the Pharmacopœia is fairly observed, the resulting solution obtained on dissolving and mixing the contents of the papers will contain either an excess of undecomposed sodium bicarbonate on the one hand or an excess of tartaric acid on the other. If the weight of the powders is decidedly diminished, their medicinal value is, of course, lessened. Particulars concerning the samples are appended.

Number of sample	Date of collection	OF WHOM PURCHASED	Where purchased	Quality
	1898			
10481	September 15	P. L. Ryan drug co.	Syracuse	Fair weight and quality.
10482	15	Brown & Dawson	do	Good weight and quality.
10483	25	A. L. Sweet, M. D	Geneva	do do
10484	26	P. Van Kleeck	Seneca Falls	Fair weight and quality.
10485	28	H. A. Plumb	Utica	do do

Precipitated sulphur. (*Sulphur præcipitatum, U. S. P.*)

Seven samples examined, of which but 3 were of good quality; 3 were inferior, containing large quantities of calcium sulphate, and the remaining sample consisted of washed sulphur, carelessly sold for precipitated sulphur. Concerning this familiar article I quote from a previous report: "Precipitated sulphur is an agent of no great therapeutic value, perhaps, but it is used, both internally and externally, for a variety of purposes. It is a good example of a class of substances often sold in the stores of inferior quality because a cheap but impure article is easily obtainable. It should be made by boiling sulphur with slaked lime and decomposing the resulting calcium sulphide and thio-sulphate with hydrochloric acid, precipitating the sulphur and yielding a soluble calcium chloride, easily removed by washing. A cheap and impure article known as 'lac sulphur,' a term not recognized in the Pharmacopœia, is however manufactured in which the precipitation is effected with sulphuric acid, resulting in the formation of calcium sulphate, which, being but slightly soluble in water, and precipitated along with the sulphur, is not removed by washing, but remains as an impurity in the sulphur. It frequently contains as much as 40 per cent of calcium sulphate, and I have seen a sample which, when used in a medicinal mixture, contained so much that it solidified at the bottom of the bottle through the 'setting' of the sulphate. Of 248 samples examined in previous years but 77, or 31 per cent, were of good quality. This sale of common lac sulphur for the official precipitated sulphur is entirely inexcusable, and since precipitated sulphur of good quality is easily obtainable in the market at a slightly higher price this substitution ought never to be made. Pharmacists ought to be familiar with the various grades of the medicinal articles in which they deal, and the tests by which genuine precipitated sulphur can be distinguished from the impure commercial article are laid down in the Pharmacopœia and are easily applied by the retailer. In this case, however, he hardly needs even to make a test, for the price he pays and name under which he buys sufficiently indicate the quality of the article supplied him. It is not a question whether the article is one of prime importance or not, but whether a drug largely adulterated with inert mineral matter ought to be sold for medicinal uses when a pure one is easily obtainable." The following table gives a description of the samples:

Number of sample	Date of collection	OF WHOM PURCHASED	Where purchased	Quality.
	1898			
10474	September 15	P. L. Ryan drug co.	Syracuse	Consists of washed sulphur; error in sale.
10475	25	A. L. Sweet, M. D.	Geneva	Good.
10476	26	P. Van Kleeck	Seneca Falls	do
10477	27	F. L. Remington	Auburn	Largely adulterated with sulphate of lime; inferior.
10478	27	Frederick Osborn	do	do do do
10479	28	A. S. Evans & co	Utica	do do do
10480	28	H. A. Plumb	do	Good.

Distilled water. (*Aqua Destillata, U. S. P.*)

Seven samples examined, of which there were of good quality 1; fair, 1, and inferior, 5. In the latter samples the total solids amounted to from 0.114 to 0.248 grams from the evaporation of 1000 c. c., and some of them contained chlorides or nitrites or both. From these results it is evident that impure rain water or mere tap water is often employed for and sold as distilled water, and since the latter is easily prepared or purchased in a condition of comparative purity, such substitution is entirely inexcusable. Particulars concerning the samples are appended.

Number of sample	Date of collection	OF WHOM PURCHASED	Where purchased	Residue from 1000 c.c. in grams	Quality
	1899				
10515	July 6	C. M. Burrows, M. D.	Albion	.....	Good.
10516	6	Chas. A. Mack	Medina	0.240	Contains sulphates and chlorides; inferior.
10517	7	Sheldon's pharmacy	Lockport	.....	Nitrites present; fair quality.
10518	7	Wayman's pharmacy	do	0.114	Contains chlorides; inferior.
10519	7	John T. Smith	do	0.212	Contains chlorides; inferior.
10520	7	Harrington brothers	do	0.248	Inferior.
10521	8	George H. Salt & co	Niagara Falls	0.170	Contains sulphates; inferior.

Coffee

Six samples of unground coffee were examined, and in none of them were any adulterants detected. Much coffee of low grade may be found on sale at low prices, but adulteration of coffee, sold as such and put in packages under special trade names, is now rarely practiced. Artificial coffee beans are about as rare as "wooden nutmegs." In 1892, when a large number of coffee samples were examined, artificial coffee beans were found in a few instances and "coffee pellets" also used for adulterating ground coffee, but such substitutions as these are very uncommon to-day and would seldom be profitable at prevailing prices. Particulars concerning the samples examined are appended.

Number of sample	Date of collection	OF WHOM PURCHASED	Where purchased	Quality
	1899			
10673	September 8	Columbia market	Syracuse	Unadulterated.
10674	8	John H. Mann & co	do	do
10675	8	Walrath's cash store	do	do
10676	8	M. A. Andrews	do	do
10677	8	John H. Phillips	do	do
10678	11	F. T. Snyder	Albany	do

Granulated sugar

Six samples examined and all found to be of good quality. The higher grades of sugar are practically free from any adulteration to-day and they are probably the most economical in use. Particulars concerning the samples examined are appended.

Number of sample	Date of collection	OF WHOM PURCHASED	Where purchased	Quality
	1899			
10685	September 8	Columbia market	Syracuse	Good.
10686	8	John H. Mann & co	do	do
10687	8	Walrath's cash store	do	do
10688	8	Moore & Pendergast	do	do
10689	8	M. A. Andrews	do	do
10690	8	John H. Phillips	do	do

Tomato catsup,

Six samples examined, two of which contained salicylic acid, and three contained benzoic acid as a preservative, but I have classed these samples as of fair quality since it is a question whether such additions constitute a violation of any existing law in this state, but it is by no means to be understood that the use of such preservatives for such a purpose is approved. Particulars concerning the samples are as follows:

Number of sample	Date of collection	OF WHOM PURCHASED	Where purchased	Contains	Quality
	1899				
10679	September 8	Columbia market	Syracuse		Good.
10680	8	John H. Mann & co	do	Benzoic acid	Fair.
10681	8	Walrath's cash store	do	Salicylic acid	do
10682	8	Moore & Pendergast	do	Benzoic acid	do
10683	8	M. A. Andrews	do	do	do
10684	8	John H. Phillips	do	Salicylic acid	do

WATER ANALYSES

During the year, as above stated, 69 samples of drinking water from various localities, have been examined. Reports on these analyses, which, while not exhaustive, have been sufficient in most instances to serve the purposes intended, not having been elsewhere published, are appended. The following circular of instructions has been mailed in advance to the senders of all samples and, in construing the results, the information furnished as to source of supply, surroundings, and possible contaminations, has been taken into consideration in forming an opinion as to quality and advising as to use for domestic purposes, and this may explain why the opinion as to quality and desirability for use may not, in all cases, appear to be justified by the analytical results alone:

CHEMICAL ANALYSIS OF WATERS

STATE BOARD OF HEALTH OF NEW YORK

DIRECTIONS FOR TAKING AND FORWARDING SAMPLES OF WATER

I. Use clean *glass* demijohns of gallon capacity. *Never use stone jugs.*
II. Rinse the demijohns thoroughly several times with the water before filling.
III. Fill with a fair sample of the water to be analysed, and if dippers, funnels or other vessels are used, see to it that these are clean.
IV. Close with a new and clean cork which should be well tied down with cord. The ends of the cord may be sealed, but top should not be coated with wax.
V. Accompany sample with description of same, stating source, proximity of houses, stables, privies, cesspools, drains or other sources of possible contamination, and if from well, depth, and character of soil. If several samples are sent state whether from same vicinity or same source, and describe fully, stating reasons for selection of the samples. All samples to be properly numbered or otherwise labeled for purpose of identification.
VI. Forward without delay, *prepaying all charges*, to Prof. Willis G. Tucker, Director State Laboratory, Albany Medical College, Albany, N. Y.
VII. Make the address tag and marking secure.

BAXTER T. SMELZER, M. D.
Secretary and Executive officer

No. 471

(Results are parts in 100,000)

Received from Dr. E. Herman Wakelee, Big Flats; date received, January 13, 1899; source, well, W. C. Peebles; how labelled, "From Big Flats, N. Y." Appearance: Color, light yellowish green; turbidity, very slight; sediment, slight; odor at 100 degrees F., very slight; chlorine in chlorides, 0.70; free ammonia, 0.0011; albuminoid ammonia, 0.0034; nitrites, none; total solids, 20.20; loss on ignition, 7.80; behavior during ignition, no change; mineral matter, 12.40; remarks, satisfactory quality.

Dated at State Board of Health laboratory, Albany, N. Y., January 20, 1899.

No. 472

(Results are parts in 100,000)

Received from Dr. C. I. Redfield, health officer, Middletown; date received, February 20, 1899; source, well; how labelled, "No. I." Appearance: Color, light greenish yellow; turbidity, none; sediment, none; Odor at 100 degrees F., none; chlorine in chlorides, 0.80; free ammonia, 0.0031; albuminoid ammonia, 0.0040; nitrites, none; total solids, 29.20; loss on ignition, 8.80; behavior during ignition, darkened slightly; mineral matter, 20.40; remarks, fair quality.

Dated at State Board of Health laboratory, Albany, N. Y., February 27, 1899.

No. 473

(Results are parts in 100,000)

Received from Dr. C. I. Redfield, health officer, Middletown; date received, February 20, 1899; source, well; how labelled, "No. II." Appearance: Color, light greenish yellow; turbidity, very slight; sediment, very slight; odor at 100 degrees F., none; chlorine in chlorides, 5.40; free ammonia, trace; albuminoid ammonia, 0.0025; nitrites, trace; total solids, 70.80; loss on ignition, 24.60; behavior during ignition, darkened very slightly; mineral matter, 46.20; remarks, unsatisfactory under circumstances stated in accompanying letter, advise use be discontinued.

Dated at State Board of Health laboratory, Albany, N. Y., February 27, 1899.

No. 474

(Results are parts in 100,000)

Received from Dr. C. I. Redfield, health officer, Middletown; date received, February 20, 1899; source, well; how labelled, "No. III." Appearance: Color, light greenish yellow; turbidity, very slight; sediment, very slight; odor at 100 degrees F., none; chlorine in chlorides, 5.30; free ammonia, 0.0013; albuminoid ammonia, 0.0035; nitrites, present; total solids, 72.40; loss on ignition, 17.80; behavior during ignition, no change; mineral matter, 54.60; remarks, unsatisfactory, under circumstances stated in accompanying letter, advise use be discontinued.

Dated at State Board of Health laboratory, Albany, N. Y., February 27, 1899.

No. 475

(Results are parts in 100,000)

Received from Dr. C. I. Redfield, health officer, Middletown; date received, February 20, 1899; source, well; how labelled, "No. IV." Appearance: Color, light greenish yellow; turbidity, very slight; sediment, slight; odor at 100 degrees F., none; chlorine in chlorides, 1.5; free ammonia, 0.0005; albuminoid ammonia, 0.0040; nitrites, none; total solids, 28.40; loss on ignition, 8.80; behavior during ignition, no change; mineral matter, 19.60; remarks, fair quality.

Dated at State Board of Health laboratory, Albany, N. Y., February 27, 1899.

No. 476

(Results are parts in 100,000)

Received from Dr. C. I. Redfield, health officer, Middletown; date received, February 20, 1899; source, well; how labelled, "No. V." Appearance: Color, greenish yellow; turbidity, slight; sediment, slight; odor at 100 degrees F., very slight; chlorine in chlorides, 8.80; free ammonia, 0.0043; albuminoid ammonia, 0.0041; nitrites, present; total solids, 111.80; loss on ignition, 24.60; behavior during ignition, no change; mineral matter, 87.20; remarks, unsatisfactory, advise the use be discontinued.

Dated at State Board of Health laboratory, Albany, N. Y., February 27, 1899.

No. 477.

(Results are parts in 100,000.)

Received from Dr. R. J. Menzie, health officer, Caledonia; date received, February 23, 1899; source, village water from pumping station; how labelled, "From R. J. Menzie." Appearance: Color, light greenish; turbidity, none; sediment, trifling; odor at 100 degrees F., slight; chlorine in chlorides, 4.60; free ammonia, 0.0011; albuminoid ammonia, 0.0025; nitrites, none; total solids, 63.60; loss on ignition, 16.40; behavior during ignition, no change; mineral matter, 47.20; remarks, fair quality.

Dated at State Board of Health laboratory, Albany, N. Y., February 27, 1899.

No. 478.

(Results are parts in 100,000.)

Received from Dr. B. R. Wakeman, health officer, Hornellsville; date received, March 2, 1899; source, city water works; how labelled, "From Dr. B. R. Wakeman." Appearance: Color, decided greenish yellow tint; turbidity, distinct; sediment, considerable; odor at 100 degrees F., very slight; chlorine in chlorides, 0.15; free ammonia, 0.0031; albuminoid ammonia, 0.0086; nitrites, none; total solids, 10.40; loss on ignition, 4.20; behavior during ignition, darkened; mineral matter, 6.20; remarks, compare favorably with many surface waters, being of fair quality.

Dated at State Board of Health laboratory, Albany, N. Y., March 8, 1899.

No. 479

(Results are parts in 100,000)

Received from Hon. G. S. Fordyce, Union Springs; date received, March 4, 1899; source, not stated; how labelled, "From G. S. Fordyce." Appearance: Color, light greenish; turbidity, very slight; sediment, slight; odor at 100 degrees F., none; chlorine in chlorides, 0.90; free ammonia, 0.0050; albuminoid ammonia, 0.0046; nitrites, present; total solids, 31.80; loss on ignition, 9.60; behavior during ignition, darkened very slightly; mineral matter, 22.20; remarks, results not entirely satisfactory.

Dated at State Board of Health laboratory, Albany, N. Y., March 8, 1899.

No. 480

(Results are parts in 100,000)

Received from Hon. R. A. M. Deeley, president board of health, Hudson; date received, March 9, 1899; source, city water supply; how labelled, "R. A. M. Deeley." Appearance: Color, decided yellowish tint; turbidity, distinct; sediment, slight; odor at 100 degrees F., none; chlorine in chlorides, 0.10; free ammonia, 0.0015; albuminoid ammonia, 0.0035; nitrites, present; total solids, 9.60; loss on ignition, 2.80; behavior during ignition, darkened, mineral matter, 6.80; remarks, fair quality for surface water and under existing conditions.

Dated at State Board of Health laboratory, Albany, N. Y., March 18, 1899.

No. 481

(Results are parts in 100,000)

Received from Dr. I. C. Haring, health officer, West Nyack; date received, March 20, 1899; source, well in Rockland lake; how labelled, "From Dr. I. C. Haring." Appearance: Color, light greenish yellow; turbidity, none; sediment, none; odor at 100 degrees F., slight; chlorine in chlorides, 38.80; free ammonia, 0.0038; albuminoid ammonia, 0.0083; nitrites, present; total solids, 189.20; loss on ignition, 71.60; behavior during ignition, darkened slightly; mineral matter, 117.60; remarks, unsatisfactory. Advise that use be discontinued.

Dated at State Board of Health laboratory, Albany, N. Y., March 31, 1899.

No. 482

(Results are parts in 100,000)

Received from Dr. J. C. La Dow, health officer, Mechanicville; date received, March 25, 1899; source, wells; how labelled, "From J. C. La Dow." Appearance: Color, nearly colorless; turbidity, none; sediment, none; odor at 100 degrees F., none; chlorine in chlorides, 4.1; free ammonia, 0.0015; albuminoid ammonia, 0.0038; nitrites, faint trace; total solids, 58.40; loss on Ignition, 16.20; behavior during ignition, darkened very slightly; mineral matter, 42.20; remarks, results not entirely satisfactory but do not warrant condemnation.

Dated State Board of Health laboratory, Albany, N. Y., March 31, 1899.

No. 483

(Results are parts in 100,000)

Received from C. B. Bates, president of board of health, Whitehall, date received, March 29, 1899; source, spring, T. S. McLachlan; how labelled, "No. 1." Appearance: Color, very light greenish; turbidity, none; sediment, trifling; odor at 100 degrees F., none; chlorine in chlorides, 1.40; free ammonia, 0.0030; albuminoid ammonia, 0.0043; nitrites, trace; total solids, 22.80; loss on ignition, 8.60; behavior during ignition, darkened slightly; mineral matter, 14.20; remarks, satisfactory, aside from trace of nitrites.

Dated at State Board of Health laboratory, Albany, N. Y., April 4, 1899.

No. 484

(Results are parts in 100,000)

Received from C. B. Bates, president board of health, Whitehall, date received, March 29, 1899; source, spring, James McLaughlin; how labelled, "No. 2." Appearance: Color, light greenish; turbidity, none; sediment, trifling; odor at 100 degrees F., very slight; chlorine in chlorides, 0.70; free ammonia, 0.0005; albuminoid ammonia, 0.0035; nitrites, faint trace; total solids, 19.20; loss on ignition, 6.60; behavior during ignition, darkened very slightly; mineral matter, 12.60; remarks, satisfactory, aside from trace of nitrites.

Dated at State Board of Health laboratory, Albany, N. Y., April 4, 1899..

No. 485

(Results are parts in 100,000)

Received from C. B. Bates, president of board of health, Whitehall, date received, March 29, 1899; source, public supply; how labelled, "No. 3." Appearance: Color, light greenish; turbidity, none; sediment, none; odor at 100 degrees F., none; chlorine in chlorides, 0.10; free ammonia, trace; albuminoid ammonia, 0.0026; nitrites, none; total solids, 7.20; loss on ignition, 2.60; behavior during ignition, no change; mineral matter, 4.60; remarks, excellent quality.

Dated at State Board of Health laboratory, Albany, N. Y., April 4, 1899.

No. 486

(Results are parts in 100,000)

Received from New York State custodial asylum, Newark; date received, April 15, 1899; source, not stated; how labelled, "New York State custodial asylum." Appearance: Color, greenish yellow; turbidity, very slight; sediment, very slight; odor at 100 degrees F., none; chlorine in chlorides, 0.50; free ammonia, 0.0043; albuminoid ammonia, 0.0073; nitrites, present; total solids, 34.20; loss on ignition, 11.40; behavior during ignition, darkened very slightly; mineral matter, 22.80; remarks: fairly satisfactory, but not to be recommended if a better supply is procurable.

Dated at State Board of Health laboratory, Albany, N. Y., April 28, 1899.

No. 487

(Results are parts in 100,000)

Received from Dr. J. H. Bogart, health officer, Roslyn; date received, April 20, 1899; source, not stated; how labelled, "From Dr. J. H. Bogart." Appearance: Color, light greenish; turbidity, none; sediment, trifling; odor at 100 degrees F., none; chlorine in chlorides, 0.50; free ammonia, trace; albuminoid ammonia, 0.0022; nitrites, trace; total solids, 4.60; loss on ignition, 1.60; behavior during ignition, no change; mineral matter, 3.00; remarks, aside from traces of nitrites is of very good quality.

Dated at State Board of Health laboratory, Albany, N. Y., April 28, 1899.

No. 488.

(Results are parts in 100,000)

Received from Gardner Fuller, Superintendent State school for the blind, Batavia; date received, April 19, 1899; source, well in State park; how labelled, "From N. Y. State school for the Blind, ——." Appearance: Color, nearly colorless; turbidity, none; sediment, none; odor at 100 degrees F., none; chlorine in chlorides, 0.40; free ammonia, 0.0043; albuminoid ammonia, 0.0030; nitrites, none; total solids, 38.60; loss on ignition, 5.40; behavior during ignition, darkened very slightly; mineral matter, 33.20; remarks, satisfactory.

Dated at State Board of Health laboratory, Albany, N. Y., April 28, 1899.

No. 489

(Results are parts in 100,000)

Received from Dr. M. J. Hall, health officer, Mamaroneck; date received, April 29, 1899; source, well; how labelled, "From St. Michael's home, Mamaroneck, N. Y." Appearance: Color, nearly colorless; turbidity, none; sediment, none; odor at 100 degrees F., none; chlorine in chlorides, 0.30; free ammonia, 0.0013; albuminoid ammonia, 0.0040; nitrites, none; total solids, 32.80; loss on ignition, 13.20; behavior during ignition, no change; mineral matter, 19.60; remarks, satisfactory.

Dated at State Board of Health laboratory, Albany, N. Y., May 5, 1899.

No. 490

(Results are parts in 100,000)

Received from Dr. J. A. Reed, health officer, Newark; date received, May 6, 1899; source, well; how labelled, "From J. A. Reed, ——." Appearance: Color, greenish yellow; turbidity, distinct; sediment, considerable; odor at 100 degrees F., none; chlorine in chlorides, 3.30; free ammonia, 0.0036; albuminoid ammonia, 0.0040; nitrites, present; total solids, 110.80; loss on ignition, 26.60; behavior during ignition, no change; mineral matter, 84.20; remarks, not satisfactory. Advise that use be discontinued.

Dated at State Board of Health laboratory, Albany, N. Y., May 10, 1899.

No. 491

(Results are parts in 100,000)

Received from W. S. Hart, clerk, board of health, Turin; date received, May 31, 1899; source, spring; how labelled, "From Village of Turin, N. Y." Appearance: Color, greenish yellow tint; turbidity, slight; sediment, trifling; odor at 100 degrees F., very slight; chlorine in chlorides, 0.50; free ammonia, 0.0055; albuminoid ammonia, 0.0120; nitrites, faint trace; total solids, 26.20; loss on ignition, 6.40; behavior during ignition, darkened; mineral matter, 19.80; remarks, not of entirely satisfactory quality.

Dated at State Board of Health laboratory, Albany, N. Y., June 7, 1899.

No. 492

(Results are parts in 100,000)

Received from Dr. Cyrus Kay, health officer, Herkimer; date received, June 1, 1899; source, well; how labelled, "Schmidt, Herkimer." Appearance: Color, peculiar reddish brown; turbidity, decided; sediment, considerable; odor at 100 degrees F., strong (of gasoline); chlorine in chlorides, 2.90; free ammonia, 0.3420; albuminoid ammonia, 0.0588; nitrites, present; total solids, 48.40; loss on ignition, 13.60; behavior during ignition, blackened; mineral matter, 34.80; remarks, water foul and entirely unfit for use.

Dated at State Board of Health laboratory, Albany, N. Y., June 7, 1899.

No. 493

(Results are parts in 100,000)

Received from Dr. Cyrus Kay, health officer, Herkimer; date received, June 1, 1899; source, well; how labelled, "Schindler, Herkimer." Appearance: Color, light greenish yellow; turbidity, very slight; sediment, very slight; odor at 100 degrees F., slight; chlorine in chlorides, 2.9; free ammonia, 0.0240; albuminoid ammonia, 0.0110; nitrites, present; total solids, 55.20; loss on ignition, 13.80; behavior during ignition, darkened slightly; mineral matter, 41.40; remarks, not satisfactory.

Dated at State Board of Health laboratory, Albany, N. Y., June 7, 1899.

No. 494

(Results are parts in 100,000)

Received from State Board of Health office, Albany; date received, June 1, 1899; source, well; how labelled, "Hinckel well, Town of Bethlehem." Appearance: Color, greenish yellow; turbidity, slight; sediment, slight; odor at 100 degrees F., slight; chlorine in chlorides, 0.20; free ammonia, 0.0090; albuminoid ammonia, 0.0120; nitrites, none; total solids, 46.80; loss on ignition, 14.60; behavior during ignition, darkened slightly; mineral matter, 32.20; remarks, not entirely satisfactory.

Dated at State Board of Health laboratory, Albany, N. Y., June 7, 1899.

No. 495

(Results are parts in 100,000)

Received from Samuel Kibbey, president board of health, Seneca Falls; date received, June 14, 1899; source, not stated; how labelled, "From Seneca Falls, N. Y." Appearance: Color, light greenish yellow; turbidity, slight; sediment, slight; odor at 100 degrees F., slight; chlorine in chlorides, 2.60; free ammonia, 0.0037; albuminoid ammonia, 0.0142; nitrites, present; total solids, 17.80; loss on ignition, 5.20; behavior during ignition, blackened; mineral matter, 12.60; remarks, not of satisfactory quality.

Dated at State Board of Health laboratory, Albany, N. Y., June 16, 1899.

No. 496

(Results are parts in 100,000)

Received from Dr. H. Eugene Smith, health officer, Mt. Vernon; date received, June 16, 1899; source, not stated; how labelled, "From H. Eugene Smith, M. D., ——." Appearance: Color, nearly colorless; turbidity, none; sediment, trifling; odor at 100 degrees F., none; chlorine in chlorides, 3.50; free ammonia, 0.0050; albuminoid ammonia, 0.0047; nitrites, trace; total solids, 48.80; loss on ignition, 14.40; behavior during ignition, no change; mineral matter, 34.40; remarks, satisfactory quality aside from trace of nitrites.

Dated at State Board of Health laboratory, Albany, N. Y., June 20, 1899.

No. 497

(Results are parts in 100,000)

Received from Dr. J. H. Bogart, health officer, Roslyn; date received, June 24, 1899; how labelled, "Water from Stephen Rushmore's pond." Appearance: Color, dark greenish; turbidity, opaque; sediment, considerable; odor at 100 degrees F., highly offensive; remarks, water foul and unfit for any use, and no analysis necessary.

Dated at State Board of Health laboratory, Albany, N. Y., July 1, 1899.

No. 498

(Results are parts in 100,000)

Received from Dr. J. H. Bogart, health officer, Roslyn; date received, June 24, 1899; how labelled, "Water from Silas W. Albertson's pond." Appearance: Color, greenish; turbidity, opaque; sediment, considerable; odor at 100 degrees F., highly offensive; remarks, water foul and unfit for any use, and no analysis necessary.

Dated at State Board of Health laboratory, Albany, N. Y., July 1, 1899.

No. 499

(Results are parts in 100,000)

Received from Dr. P. W. O'Brien, health officer, Peekskill; date received, June 29, 1899; source, public supply; how labelled, "From Peekskill, N. Y." Appearance: Color, greenish tint; turbidity, very slight; sediment, slight; odor at 100 degrees F., slight; chlorine in chlorides, 0.15; free ammonia, 0.0028; albuminoid ammonia, 0.0067; nitrites, faint trace; total solids, 7.80; loss on ignition, 3.40; behavior during ignition, darkened, slight odor; mineral matter, 4.40; remarks, satisfactory aside from trace of nitrites.

Dated at State Board of Health laboratory, Albany, N. Y., July 5, 1899.

No. 500

(Results are parts in 100,000)

Received from Hon. G. S. Fordyce, Union Springs; date received, July 11, 1899; source, well; how labelled, "From Fordyce, Union Springs." Appearance: Color, light greenish; turbidity, very slight; sediment, slight; odor at 100 degrees F., very slight; chlorine in chlorides, 4.60; free ammonia, 0.0017; albuminoid ammonia, 0.0085; nitrites, present; total solids, 59.40; loss on ignition, 17.20; behavior during ignition, darkened slightly; mineral matter, 42.20; remarks, not entirely satisfactory.

Dated at State Board of Health laboratory, Albany, N. Y., July 14, 1899.

No. 501

(Results are parts in 100,000)

Received from Dr. H. Eugene Smith, health officer, Mount Vernon; date received, July 24, 1899; source, city water; how labelled, "Cold, Dr. Smith." Appearance: Color, light greenish; turbidity, none; sediment, none; odor at 100 degrees F., none; chlorine in chlorides, 0.70; free ammonia, 0.0063; albuminoid ammonia, 0.0109; nitrites, none; total solids, 9.80; loss on ignition, 3.40; behavior during ignition, darkened slightly; mineral matter, 6.40; remarks, fair quality.

Dated at State Board of Health laboratory, Albany, N. Y., July 31, 1899.

No. 502

(Results are parts in 100,000)

Received from Dr. H. Eugene Smith, health officer, Mount Vernon; date received, July 24, 1899; source, city water; how labelled, "Hot water, Dr. Smith." Appearance: Color, light greenish; turbidity, very slight; sediment, trifling; odor at 100 degrees F., none; chlorine in chlorides, 0.70; free ammonia, 0.0013; albuminoid ammonia, 0.0109; nitrites, present; total solids, 9.20; loss on ignition, 3.60; behavior during ignition, darkened slightly; mineral matter, 5.60; remarks, fair quality aside from presence of nitrites.

Dated at State Board of Health laboratory, Albany, N. Y., July 31, 1899.

No. 503

(Results are parts in 100,000)

Received from Dr. J. D. Cook, health officer, Shortsville; date received, July 27, 1899; source, well; how labelled, "From Shortsville, N. Y." Appearance: Color, greenish; turbidity, none; sediment, none; odor at 100 degrees F., very slight; chlorine in chlorides, 5.20; free ammonia, 0.0055; albuminoid ammonia, 0.0205; nitrites, present, total solids, 84.80; loss on ignition, 10.40; behavior during ignition, blackened; mineral matter, 74.40; remarks, not satisfactory. Advise that use be discontinued.

Dated at State Board of Health laboratory, Albany, N. Y., July 31, 1899.

No. 504

(Results are parts in 100,000)

Received from Dr. H. W. Wilcox, Deposit; date received, August 5, 1899; source, village water works; how labelled, "From Deposit, N. Y." Appearance: Color, greenish yellow; turbidity, distinct; sediment, considerable; odor at 100 degrees F., slight; chlorine in chlorides, 0.10; free ammonia, 0.0050; albuminoid ammonia, 0.0137; nitrites, none; total solids, 4.40; less on ignition, 2.10; behavior during ignition, darkened; mineral matter, 2.30; remarks, not entirely satisfactory but results do not warrant condemnation.

Dated at State Board of Health laboratory, Albany, N. Y., August 10, 1899.

No. 505

(Results are parts in 100,000)

Received from B. E. Elphee, clerk board of health, Mayfield; date received, August 5, 1899; source, open spring in cellar; how labelled, "From Village of Mayfield, N. Y." Appearance: Color, light greenish; turbidity, none; sediment, none; odor at 100 degrees F., slight; chlorine in chlorides, 3.70; free ammonia, 0.0100; albuminoid ammonia, 0.0090; nitrites, present; total solids, 47.30; loss on ignition, 5.20; behavior during ignition, darkened; mineral matter, 42.10; remarks, not satisfactory. Advise that use be discontinued.

Dated at State Board of Health laboratory, Albany, N. Y., August 10, 1899.

No. 506.

(Results are parts in 100,000)

Received from John Nicholson, secretary board of health, Belmont; date received, August 12, 1899; source, well; how labelled, "From board of health, Belmont, N. Y." Appearance: Color, light yellowish green; turbidity, none; sediment, trifling; odor at 100 degrees F., slight; chlorine in chlorides, 2.10; free ammonia, 0.0085; albuminoid ammonia, 0.0093; nitrites, present; total solids, 27.60; loss on ignition, 12.40; behavior during ignition, darkened very slightly; mineral matter, 15.20; remarks, not satisfactory, and taking into consideration facts stated by sender, advise use be discontinued.

Dated at State Board of Health laboratory, Albany, N. Y., August 18, 1899.

No. 507

(Results are parts in 100,000)

Received from Dr. Frank T. Cochran, health officer, Hudson; date received, August 12, 1899; source, stream running into cellar; how labelled, "From Hudson, N. Y." Appearance: Color, decided grayish brown; turbidity, opaque; sediment, large, grayish; odor at 100 degrees F., highly offensive; chlorine in chlorides, 13.60; free ammonia, 0.6380; albuminoid ammonia, 0.2080; nitrites, large amount; total solids, 328.20; loss on ignition, 165.40; behavior during ignition, blackened, strong odor; mineral matter, 162.80; remarks, this is rank and offensive sewage, and its inflow should be promptly prevented.

Dated at State Board of Health laboratory, Albany, N. Y., August 18, 1899.

No. 508

(Results are parts in 100,000)

Received from State Board of Health office, Albany; date received, August 24, 1899; source, spring; how labelled, none. Appearance: Color, light greenish; turbidity, none; sediment, very slight; odor at 100 degrees F., none; chlorine in chlorides, 3.30; free ammonia, 0.0027; albuminoid ammonia, 0.0040; nitries, none; total solids, 22.40; loss on ignition, 9.20; behavior during ignition, no change; mineral matter, 13.20; remarks, good quality.

Dated at State Board of Health laboratory, Albany, N. Y., September 5, 1899.

No. 509

(Results are parts in 100,000)

Received from U. H. Mersereau, clerk board of health, Union; date received, September 5, 1899; source, reservoir, public supply; how labelled, "A." Appearance: Color, light greenish yellow; turbidity, none; sediment, very slight; odor at 100 degrees F., very slight; chlorine in chlorides, 0.60; free ammonia, 0.0250; albuminoid ammonia, 0.0150; nitrites, present; total solids, 22.40; loss on ignition, 6.80; behavior during ignition, darkened; mineral matter, 15.60; remarks, unsatisfactory quality.

Dated at State Board of Health laboratory, Albany, N. Y., September 15, 1899.

No. 510

(Results are parts in 100,000)

Received from U. H. Mersereau, clerk board of health, Union; date received, September 5, 1899; source, public supply, from faucet; how labelled, "B." Appearance: Color, light greenish; turbidity, none; sediment, trifling; odor at 100 degrees F., none; chlorine in chlorides, 0.60; free ammonia, trace; albuminoid ammonia, 0.0020; nitrites, none; total solids, 32.60; loss on ignition, 7.80; behavior during ignition, no change; mineral matter, 24.80; remarks, satisfactory; quite different from and very much superior to No. 509.

Dated at State Board of Health laboratory, Albany, N. Y., September 15, 1899.

No. 511

(Results are parts in 100,000)

Received from T. L. Stone, steward, Craig Colony, Sonyea; date received, September 5, 1899; source, not stated; how labelled, "Craig Colony, Sonyea, N. Y." Appearance: Color, light greenish; turbidity, none; sediment, very slight; odor at 100 degrees F., slight; chlorine in chlorides, 2.50; free ammonia, 0.0100; albuminoid ammonia, 0.0075; nitrites, none; total solids, 44.40; loss on ignition, 8.80; behavior during ignition, darkened very slightly; mineral matter, 35.60; remarks, fair quality.

Dated at State Board of Health laboratory, Albany, N. Y., September 15, 1899.

No. 512

(Results are parts in 100,000)

Received from Hon. C. W. Adams; date received, September 6, 1899; source, Keeseville water supply inspection; how labelled, "Flume at intake of the pumps." Appearance: Color, decided brownish tint; turbidity, slight; sediment, slight; odor at 100 degrees F., slight; chlorine in chlorides, 0.20; free ammonia, 0.0070; albuminoid ammonia, 0.0140; nitrites, none; total solids, 23.20; loss on ignition, 16.20; behavior during ignition, blackened, strong odor; mineral matter, 7.00; remarks, not of any satisfactory quality for domestic use, contains considerable organic matter of vegetable origin and shows little evidence of sewage pollution.

Dated at State Board of Health laboratory, Albany, N. Y., September 15, 1899.

No. 513

(Results are parts in 100,000)

Received from Hon. C. W. Adams; date received, September 6, 1899; source, Keeseville water supply inspection; how labelled, "West branch Au Sable at Wilmington before discharges from the mill reach the river." Appearance: Color, light greenish yellow; turbidity, none; sediment, trifling; odor at 100 degrees F., none; chlorine in chlorides, 0.15; free ammonia, 0.0062; albuminoid ammonia, 0.0075; nitrites, none; total solids, 5.40; loss on ignition, 3.60; behavior during ignition, darkened; mineral matter, 1.80; remarks, decidedly superior to No. 512 and of quite satisfactory quality for a surface water.

Dated at State Board of Health laboratory, Albany, N. Y., September 15, 1899.

No. 514

(Results are parts in 100,000)

Received from Dr. H. Eugene Smith, health officer, Mount Vernon; date received, September 11, 1899; source, not stated; how labelled, "From Health department, Mount Vernon." Appearance: Color, light greenish yellow; turbidity, none; sediment, very slight; odor at 100 degrees F., none; chlorine in chlorides, 8.60; free ammonia, 0.0038; albuminoid ammonia, 0.0049; nitrites, none; total solids, 54.40; loss on ignition, 20.60; behavior during ignition, no change; mineral matter, 33.80; remarks, not very satisfactory but no information furnished concerning same and unable to advise particularly.

Dated at State Board of Health laboratory, Albany, N. Y., September 15, 1899.

No. 515

(Results are parts in 100,000)

Receiver from Dr. J. O. Randall, Silver Springs, date received, September 18, 1899; source, driven well; how labelled, "Downing well." Appearance: Color, light greenish; turbidity, none; sediment, none; odor at 100 degrees F., none; chlorine in chlorides, 4.80; free ammonia, 0.0085; albuminoid ammonia, 0.0055; nitrites, present; total solids, 45.80; loss on ignition, 12.20; behavior during ignition, darkened very slightly; mineral matter, 33.60; remarks, not satisfactory.

Dated at State Board of Health laboratory, Albany, N. Y., October 2, 1899.

No. 516

(Results are parts in 100,000)

Received from Dr. J. O. Randall, Silver Springs; date received, September 18, 1899; source, driven well; how labelled "Rauf well." Appearance: Color, light greenish; turbidity, none; sediment, trifling; odor at 100 degrees F., none; chlorine in chlorides, 5.50; free ammonia, 0.0193; albuminoid ammonia, 0.0053; nitrites, present; total solids, 39.80; loss on ignition, 9.20; behavior during ignition, darkened very slightly; mineral matter, 30.60; remarks, not satisfactory.

Dated at State Board of Health laboratory, Albany, N. Y., October 2, 1899.

No. 517

(Results are parts in 100,000)

Received from Dr. J. O. Randall, Silver Springs; date received, September 18, 1899; source, dug well; how labelled, "Surdam well." Appearance: Color, light greenish yellow; turbidity, none; sediment, very slight; odor at 100 degrees F., none; chlorine in chlorides, 0.80; free ammonia, trace; albuminoid ammonia, 0.0015; nitrites, trace; total solids, 18.60; loss on ignition, 4.20; behavior during ignition, darkened very slightly; mineral matter, 14.40; remarks, satisfactory.

Dated at State Board of Health laboratory, Albany, N. Y., October 2, 1899.

No. 518

(Results are parts in 100,000)

Received from Dr. J. O. Randall, Silver Springs; date received, September 18, 1899; source, driven well; how labelled "Wheeler well." Appearance: Color, light greenish; turbidity, none; sediment, trifling; odor at 100 degrees F., none; chlorine in chlorides, 3.90; free ammonia, 0.0055; albuminoid ammonia, 0.0037; nitrites, present; total solids, 41.00; loss on ignition, 12.40; behavior during ignition, darkened very slightly; mineral matter, 28.60; remarks, not entirely satisfactory; advise to boil if used under circumstances stated.

Dated at State Board of Health laboratory, Albany, N. Y., October 2, 1899.

No. 519

(Results are parts in 100,000)

Received from Dr. J. O. Randall, Silver Springs; date received, September 18, 1899; source, pump station below accumulating tank; how labelled "From pump station." Appearance: Color, greenish yellow tint; turbidity, none; sediment, very slight; odor at 100 degrees F., none; chlorine in chlorides, 0.20; free ammonia, 0.0115; albuminoid ammonia, 0.0097; nitrites, none; total solids, 24.20; loss on ignition, 6.40; behavior during ignition, darkened; mineral matter, 17.80; remarks, not entirely satisfactory.

Dated at State Board of Health laboratory, Albany, N. Y., October 2, 1899.

No. 520

(Results are parts in 100,000)

Received from Dr. J. O. Randall, Silver Springs; date received, September 18, 1899; source, village water supply; how labelled, "Village water supply." Appearance: Color, light greenish; turbidity, none; sediment, none; odor at 100 degrees F., none; chlorine in chlorides, 0.15; free ammonia, 0.0045; albuminoid ammonia, 0.0023; nitrites, none; total solids, 24.80; loss on ignition, 2.20; behavior during ignition, darkened very slightly; mineral matter, 22.60; remarks, satisfactory.

Dated at State Board of Health laboratory, Albany, N. Y., October 2, 1899.

No. 521

(Results are parts in 100,000)

Received from Hon. Thomas Newbold, Hyde Park; date received, September 23, 1899; source, well; how labeled, "From Hyde Park, N. Y." Appearance: Color, light greenish; turbidity, none; sediment, none; odor at 100 degrees F., none; chlorine in chlorides, 0.20; free ammonia, 0.0020; albuminoid ammonia, 0.0023; nitrites, none; total solids, 9.40; loss on ignition, 2.40; behavior during ignition, no change; mineral matter, 7.00; remarks, good quality.

Dated at State Board of Health laboratory, Albany, N. Y., October 2, 1899.

No. 522

(Results are parts in 100,000)

Received from Dr. F. H. Green, health officer, Homer; date received, September 26, 1899; source, well; how labelled, "From Homer, N. Y." Appearance: Color, light greenish; turbidity, none; sediment, none; odor at 100 degrees F., slight; chlorine in chlorides, 0.15; free ammonia, trace; albuminoid ammonia, 0.0027; nitrites, none; total solids, 21.80; loss on ignition, 2.60; behavior during ignition, darkened very slightly; mineral matter, 19.20; remarks, good quality.

Dated at State Board of Health laboratory, Albany, N. Y., October 2, 1899.

No. 523

(Results are parts in 100,000)

Received from Dr. Ellwood Oliver, health officer, Ancram; date received, October 6, 1899; source, well; how labelled, "No. 1." Appearance: Color, greenish yellow; turbidity, decided; sediment, considerable; odor at 100 degrees F., slight; chlorine in chlorides, 6.40; free ammonia, 0.0060; albuminoid ammonia, 0.0110; nitrites, present; total solids, 62.40; loss on ignition, 9.80; behavior during ignition, darkened; mineral matter, 52.60; remarks, not satisfactory. Advise to discontinue use under circumstances as stated.

Dated at State Board of Health laboratory, Albany, N. Y., October 13, 1899.

No. 524

(Results are parts in 100,000)

Received from Dr. Ellwood Oliver, health officer, Ancram; date received, October 6, 1899; source, well; how labelled, "No. 2." Appearance: Color, light greenish; turbidity, none; sediment, trifling; odor at 100 degrees F., very slight; chlorine in chlorides, 2.30; free ammonia, 0.0017; albuminoid ammonia, 0.0057; nitrites, present; total solids, 20.80; loss on ignition, 2.20; behavior during ignition, darkened slightly; mineral matter, 18.60; remarks, not entirely satisfactory. Would advise to boil the water under circumstances as stated.

Dated at State Board of Health laboratory, Albany, N. Y., October 13, 1899.

No. 525

(Results are parts in 100,000)

Received from Dr. Ellwood Oliver, health officer, Ancram; date received, October 6, 1899; source, well; how labelled, "No. 3." Appearance: Color, light greenish; turbidity, none; sediment, very slight; odor at 100 degrees F., none; chlorine in chlorides, 0.80; free ammonia, none; albuminoid ammonia, 0.0013; nitrites, present; total solids, 18.20; loss on ignition, 3.60; behavior during ignition, no change; mineral matter, 14.60; remarks, good quality aside from presence of nitrites not necessarily important in this water.

Dated at State Board of Health laboratory, Albany, N. Y., October 13, 1899.

No. 526

(Results are parts in 100,000)

Received from Dr. Ellwood Oliver, health officer, Ancram; date received, October 6, 1899; source, spring above village; how labelled, "No. 4." Appearance: Color, light greenish; turbidity, none; sediment, trifling; odor at 100 degrees F., none; chlorine in chlorides, 0.10; free ammonia, 0.0015; albuminoid ammonia, 0.0030; nitrites, none; total solids, 7.20; loss on ignition, 0.60; behavior during ignition, no change; mineral matter, 6.60; remarks, good quality.

Dated at State Board of Health laboratory, Albany, N. Y., October 13, 1899.

No. 527

(Results are parts in 100,000)

Received from Dr. Ellwood Oliver, health officer, Ancram; date received, October 6, 1899; source, "Spring 200 feet higher up than No. 4;" how labelled, "No. 5." Appearance: Color, light greenish; turbidity, none; sediment, none; odor at 100 degrees F., none; chlorine in chlorides, 0.10; free ammonia, trace; albuminoid ammonia, 0.0025; nitrites, none; total solids, 7.20; loss on ignition, 0.80; behavior during ignition, no change; mineral matter, 6.40; remarks, good quality.

Dated at State Board of Health laboratory, Albany, N. Y., October 13, 1899.

No. 528

(Results are parts in 100,000)

Received from Dr. Ellwood Oliver, health officer, Ancram; date received, October 6, 1899; source, well; how labelled, "No. 6." Appearance: Color, greenish yellow; turbidity, slight; sediment, trifling; odor in 100 degrees F., decided; chlorine in chlorides, 0.60; free ammonia, 0.0063; albuminoid ammonia, 0.0110; nitrites, present; total solids, 22.20; loss on ignition, 5.40; behavior on ignition, darkened slightly; mineral matter, 16.80; remarks, not satisfactory. Advise to discontinue use under circumstances stated.

Dated at State Board of Health laboratory, Albany, N. Y., October 13, 1899.

No. 529

(Results are parts in 100,000)

Received from Dr. Ellwood Oliver, health officer, Ancram; date received, October 6, 1899; source, well; how labelled, "No. 7." Appearance: Color, light greenish yellow; turbidity, very slight; sediment, very slight; odor at 100 degrees F., none; chlorine in chlorides, 1.20; free ammonia, 0.0005; albuminoid ammonia, 0.0052; nitrites, present; total solids, 26.20; loss on ignition, 7.80; behavior during ignition, darkened very slightly; mineral matter, 18.40; remarks, fair quality.

Dated at State Board of Health laboratory, Albany, N. Y., October 13, 1899.

No. 530

(Results are parts in 100,000)

Received from Dr. J. S. Bird, health officer, Hyde Park; date received, October 7, 1899; source, well; how labelled, "No. 1." Appearance: Color, light greenish yellow; turbidity, slight; sediment, very slight; odor at 100 degrees F., none; chlorine in chlorides, 7.90; free ammonia, 0.0050; albuminoid ammonia, 0.0100; nitrites, present; total solids, 69.20; loss on ignition, 19.80; behavior during ignition, darkened slightly; mineral matter, 49.40; remarks, not satisfactory; advise discontinuance of use under circumstances stated by owner of premises.

Dated at State Board of Health laboratory, Albany, N. Y., October 13, 1899.

No. 531

(Results are parts in 100,000)

Received from Dr. J. S. Bird, health officer, Hyde Park; date received, October 7, 1899; source, well; how labelled, "No. 2." Appearance: Color, light greenish yellow; turbidity, slight; sediment, considerable; odor at 100 degrees F., none; chlorine in chlorides, 4.10; free ammonia, 0.0025; albuminoid ammonia, 0.0049; nitrites, trace; total solids, 26.20; loss on ignition, 10.40; behavior during ignition, darkened very slightly; mineral matter, 15.80; remarks, fair quality.

Dated at State Board of Health laboratory, Albany, N. Y., October 13, 1899.

No. 532.

(Results are parts in 100,000)

Received from Dr. Frank T. Cochran, health officer, Hudson; date received, October 20, 1899; source, ditch; how labelled, "From Dr. F. T. Cochran." Appearance: Color decided brownish tint; turbidity, opalescent; sediment, considerable; odor at 100 degrees F., slight; chlorine in chlorides, 5.80; free ammonia, 0.0197; albuminoid ammonia, 0.0320; nitrites, present; total solids, 77.40; loss on ignition, 7.80; behavior during ignition, blackened; mineral matter, 69.60; remarks, this is a diluted sewage.

Dated at State Board of Health laboratory, Albany, N. Y., October 30, 1899.

No. 533.

(Results are parts in 100,000)

Received from Dr. E. L. Ford, health officer, Lexington; date received, October 24, 1899; source, spring; how labelled, "From Dr. E. L. Ford." Appearance: Color, decided greenish yellow tint; turbidity, slight; sediment, very slight; odor at 100 degrees F., slight; chlorine in chlorides, 0.05; free ammonia, 0.0020; albuminoid ammonia, 0.0061; nitrites, none; total solids, 2.80; loss on ignition, 0.40; behavior during ignition, no change; mineral matter, 2.40; remarks, satisfactory quality.

Dated at State Board of Health laboratory, Albany, N. Y., October 30, 1899.

No. 534.

(Results are parts in 100,000)

Received from Dr. E. A. Simonds, health officer, Carthage; date received, October 27, 1899; source, Black river water from hydrant; how labelled, "Carthage, N. Y." Appearance: color, decided greenish yellow tint; turbidity, very slight; sediment, trifling ; odor at 100 degrees F., slight; chlorine in chlorides, 0.10; free ammonia, 0.0040; albuminoid ammonia, 0.0155; nitrites, trace; total solids, 6.60; loss on ignition, 2.80; behavior during ignition, blackened; mineral matter, 3.80; remarks, not of very satisfactory quality.

Dated at State Board of Health laboratory, Albany, N. Y., November 4, 1899.

No. 535.

(Results are parts in 100,000)

Received from Dr. W. F. Shaw, health officer, Voorheesville; date received, October 27, 1899; source, well of Dr. Fitch, New Scotland; how labelled, "From W. F. Shaw." Appearance: Color, deep brownish; turbidity, decided; sediment, considerable; odor at 100 degrees F., slight; chlorine in chlorides, 1.90; free ammonia, 0.0385; albuminoid ammonia, 0.0140; nitrites, present; total solids, 18.80; loss on ignition, 7.60; behavior during ignition, blackened; mineral matter, 11.20; remarks, water unfit for use.

Dated at State Board of Health laboratory, Albany, N. Y., November 4, 1899.

No. 536.

(Results are parts in 100,000)

Received from Dr. F. M. Perine, health officer, Dansville, date received, November 4, 1899; source, not stated; how labelled, "From Dr. Perine, Dansville." Appearance: Color, light greenish yellow; turbidity, very slight; sediment, very slight; odor at 100 degrees F., slight; chlorine in chlorides, 0.60; free ammonia, 0.0143; albuminoid ammonia, 0.0077; nitrites, present; total solids, 20.40; loss on ignition, 4.60; behavior during ignition, darkened slightly; mineral matter, 15.80; remarks, not satisfactory.

Dated at State Board of Health laboratory, Albany, N. Y., November 11, 1899.

No. 537

(Results are parts in 100,000)

Received from Dr. F. M. Perine, health officer, Dansville; date received, December 11, 1899; source, reservoir supplying village; how labelled, "No. 1." Appearance: Color, light yellowish green; turbidity, very slight; sediment, trifling; odor at 100 degrees F., very slight; chlorine in chlorides, 0.60; free ammonia, 0.0025; albuminoid ammonia, 0.0044; nitrites, trace; total solids, 23.20; loss on ignition, 5.40; behavoir during ignition, no change; mineral matter, 17.80; remarks, in decidedly better condition than when examined November 11, and of satisfactory quality aside from trace of nitrites.

Dated at State Board of Health laboratory, Albany, N. Y., December 16, 1899.

No. 538

(Results are parts in 100,000)

Received from Dr. F. M. Perine, health officer, Dansville; date received, December 11, 1899; source, creek; how labelled, "No. 2." Appearance: Color, light yellowish green; turbidity, none; sediment, trifling; odor at 100 degrees F., very slight; chlorine in chlorides, 0.20; free ammonia, 0.0005; albuminoid ammonia, 0.0037; nitrites, none; total solids, 18.20; loss on ignition, 3.80; behavior during ignition, no change; mineral matter, 14.40; remarks, better than No. 537 and of very good quality.

Dated at State Board of Health laboratory, Albany, N. Y., December 16, 1899.

No. 539

(Results are parts in 100,000)

Received from Dr. P. D. Carpenter, health officer, Pittsford; date received, December 20, 1899; source, well of Dr. Dean; how labelled, "From Pittsford, N. Y." Appearance: Color, greenish yellow tint; turbidity, slight; sediment, slight; odor at 100 degrees F., very slight; chlorine in chlorides, 4.80; free ammonia, 0.0038; albuminoid ammonia, 0.0080; nitrites, present; total solids, 68.60; loss on ignition, 18.20; behavior during ignition, darkened very slightly; mineral matter, 50.40; remarks, not satisfactory and under circumstances stated advise that use be discontinued.

Dated at State Board of Health laboratory, Albany, N. Y., December 23, 1899.

CONCLUSION

During the past year the director has had the valuable and very efficient services of an assistant, T. J. Bradley, Ph. G., for a few months as above stated. The total expenses of the laboratory for the year have been $2466.14, including salaries, cost of samples and collection of same, traveling expenses, laboratory fittings and supplies, and books for the library. During the last four years the average cost of the work has been $1741.90, and it is thought that a large amount of essential and valuable work has been done when the amount expended is con-

sidered, but no extended investigations can be entered upon, nor suitable supervision of the food and drug supply of this great state exercised until proper laboratory facilities are provided and adequate provision made for carrying on the work.

Respectfully submitted,

WILLIS G. TUCKER,

Director State Board of Health Laboratory

ALBANY, N. Y., *January* 1, 1900

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SANITARY CONDITION OF THE STATE

AND

SUMMARY OF MORTALITY REPORTED DURING THE YEAR

Sanitary Condition of the State and Summary of Mortality Reported During the Year

By F. C. Curtis, M. D.

There were 121,821 deaths reported during the year and recorded in the "Monthly bulletin." The estimated death rate was 17.3 per 1000 population. That of the year 1898 was 18, and the average for the preceding 10 years was 17.2.

The mortality represents an average longevity of 57.7 years. The average longevity reckoned on the returns of the last 10 years was 58. These do not, however, include delayed returns sent to the office of the State Board of Health too late for insertion in the Bulletin, which would probably add 750 to the number of deaths reported for the year.

The following table enumerates the mortality of the past 10 years, and the averages per year:

Totals of mortality, classified by causes, for 10 *years*, 1890–99, *and average yearly mortality*

YEARS	Total number of deaths	Representing average daily death rate of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough
1890	116,830	320	37,392	31.6	169	474	1,612	738	4	913	1,161	312	1,156
1891	123,878	340	42,740	34.5	178	589	1,926	619	4	2,254	1,200	377	825
1892	126,302	345	42,434	33.5	183	649	1,664	613	143	2,177	1,350	477	921
1893	123,908	340	41,643	33.6	180	875	1,685	493	252	1,626	789	366	1,203
1894	118,195	324	41,472	35.0	185	489	1,640	422	308	1,227	900	331	1,020
1895	121,785	336	42,003	34.5	165	546	1,716	409	11	850	1,266	370	1,169
1896	120,683	330	40,136	34.5	156	510	1,542	449	8	759	1,495	340	996
1897	117,078	321	35,771	33.6	140	538	1,351	380	27	841	873	303	825
1898	120,972	331	37,113	30.2	136	695	1,810	404	1	837	833	287	1,155
1899	121,821	333	35,366	29.0	120	702	1,604	248	21	730	756	353	885
Average for 10 years	119,373	327	40,095	33.0	170	577	1,650	527	78	1,369	1,077	340	1,057

Table of mortality, classified by causes, etc.— (Concluded)

YEARS	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
1890	4,915	8,468	18,053	13,881	928	7,696	5,688	7,306	11,953	2,869	4,542	5,484	18,728
1891	5,072	9,179	20,697	13,445	1,043	8,488	6,478	8,480	13,126	2,028	5,028	6,530	15,361
1892	5,918	9,185	20,432	13,471	1,181	8,920	6,502	9,013	14,009	3,152	5,543	6,385	14,647
1893	5,947	9,056	19,807	13,128	1,054	8,834	6,955	9,042	13,826	3,232	5,205	5,826	14,622
1894	6,592	8,959	15,885	12,824	911	8,745	6,947	8,451	12,943	3,305	5,487	5,497	15,310
1895	4,989	9,055	17,725	13,267	989	8,892	7,449	9,966	11,724	3,554	5,889	5,569	16,330
1896	4,597	8,776	16,820	13,265	972	8,955	7,770	10,486	11,925	3,789	7,022	5,377	14,835
1897	4,115	7,267	16,277	12,641	1,013	8,963	7,866	10,905	12,124	4,131	6,173	5,516	14,950
1898	2,612	8,499	16,850	12,979	920	10,101	8,641	10,511	13,813	4,385	6,520	5,524	14,641
1899	2,786	6,480	17,988	13,412	877	10,163	9,064	10,606	13,177	4,533	6,093	6,098	15,324
Average for 10 years	5,061	8,674	17,588	13,124	990	8,610	7,000	9,105	12,625	3,408	5,533	5,770	15,210

COMPARATIVE MORTALITY OF THE SANITARY DISTRICTS

For the purpose of statistical classification the state is divided into eight sanitary districts, which are described as follows:

Maritime district: Includes New York, Brooklyn, Long Island, Staten Island and Westchester county. Hudson valley district: All the counties on either side of the Hudson river, except Westchester to and including Albany and Rensselaer. Adirondack and northern district: The northern section of the state—the counties of Washington, Warren, Hamilton, Essex, Clinton, Franklin, St. Lawrence, Jefferson and Lewis. Mohawk valley district: Schenectady, Schoharie, Saratoga, Montgomery, Fulton, Herkimer and Oneida counties. Southern tier district: The seven counties along the southern border of the state. East central district: Sullivan, Delaware, Otsego, Madison, Chenango, Onondaga and Cortland counties. West central district: Cayuga, Tompkins, Seneca, Schuyler, Ontario, Yates, Livingston, Genesee and Wyoming counties. Lake Ontario and western district: Oswego, Wayne, Monroe, Orleans, Niagara and Erie counties.

Area and density of population of the sanitary districts

DISTRICTS	Area in square miles	Population per square mile	Percentage urban population*	Percentage rural population †
Maritime	2,286	1,675	96.4	3.6
Hudson valley	5,872	120	47.3	52.7
Adirondack and northern	15,080	26	10.6	89.4
Mohawk valley	4,731	83	39.5	60.5
Southern tier	6,545	65	34.4	65.6
East central	6,555	65	28.7	71.3
West central	4,746	65	18.4	81.6
Lake Ontario and western	4,378	200	67.4	32.6
Entire state	50,200	140	70.0	30.0

* Cities and towns of 10,000 and over.
† Villages and towns of less than 10,000 population.

TOTALS OF MORTALITY IN THE SANITARY DISTRICTS FOR THE YEAR

DISTRICTS	Total number of deaths	Representing annual death rate per 1000 pop'n of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough
Maritime district	70,384	18.4	25,751	36.5	129	414	578	185	18	550	600	241	565
Hudson valley district	11,854	17.0	2,499	21.0	124	84	318	31	1	26	53	30	75
Adirondack and northern district	5,332	14.0	994	18.6	109	37	139	4	.....	19	2	10	44
Mohawk valley district	6,087	15.5	1,060	17.4	95	32	90	3	1	13	3	12	52
Southern tier district	5,930	14.0	890	15.0	90	30	121	3	.....	28	11	6	39
East central district	5,687	14.0	788	14.0	80	22	107	5	.....	14	5	13	38
West central district	4,565	14.0	568	12.5	76	25	50	8	.....	21	9	9	7
Lake Ontario and western district	11,981	13.7	2,867	24 0	128	58	201	9	1	59	73	32	66

TOTALS OF MORTALITY IN THE SANITARY DISTRICTS FOR THE YEAR—(*Concluded*)

DISTRICTS	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
Maritime district	2,008	3,905	11,264	8,546	529	6,309	5,813	4,788	6,255	2,302	3,639	1,594	10,281
Hudson valley district	231	625	1,541	1,313	62	822	756	1,251	1,646	415	582	765	1,227
Adirondack and northern district	54	270	693	525	39	402	319	552	669	212	207	58[illegible]	549
Mohawk valley district	114	256	807	549	45	468	431	691	802	255	284	555	624
Southern tier district	75	225	699	485	45	506	374	737	792	280	295	631	548
East central district	47	195	744	485	41	464	352	719	763	3[illegible]0	275	591	507
West central district	60	159	567	395	23	355	246	635	697	213	211	486	389
Lake Ontario and western district	197	845	1,623	1,114	93	837	773	1,231	1,553	548	600	870	1,198

Relative mortality from chief causes, in the sanitary districts

DISTRICTS	IN EACH 1000 DEATHS FROM ALL CAUSES THERE WERE FROM—					
	Typhoid fever	Scarlet fever	Diphtheria	Diarrhea	Consumption	Acute respiratory diseases
Maritime	8	8	28	55	135	160
Hudson valley	26	2	19	52	110	130
Adirondack & northern	26	4	10	50	99	130
Mohawk valley	13	2	19	42	91	135
Southern tier	20	5	13	38	83	115
East central	19	3	9	34	85	130
West central	11	5	12	34	87	125
Lake Ontario & western	17	5	16	70	93	135
Entire state	13	6	23	53	110	145

SEASON

The mortality of the months and seasons is shown in the following for 1898; after which the deaths reported for the months for 14 years is placed:

TOTALS OF MORTALITY OF THE STATE BY MONTHS

1899	Total number of deaths	Representing annual death rate per 1000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough
January	12,421	21.0	2,590	21.0	65	52	111	12	1	71	51	43	77
February	10,763	19.7	2,506	23.5	70	45	116	20	1	87	37	36	76
March	11,065	19.0	2,807	25.5	75	82	121	12	1	96	61	40	73
April	10,383	17.8	2,627	25.4	77	90	101	20	2	73	68	40	65
May	9,556	16.0	2,366	25.0	78	71	98	14	5	76	85	45	87
June	9,433	16.1	3,104	33.0	145	62	80	22	7	71	102	31	73
July	11,291	18.7	4,819	42.6	238	56	94	34	1	45	82	21	101
August	10,008	17.1	3,696	37.0	215	64	157		.....	26	49	15	120
September	9,188	15.8	3,068	33.4	172	57	205	21	.....	19	34	6	85
October	9,280	16.0	3,175	34.3	110	46	202	27	1	36	24	17	60
November	8,607	14.7	2,187	25.4	101	38	169	25	.....	54	75	26	47
December	9,833	16.5	2,441	25.0	93	39	155	18	2	69	88	33	72
Totals first quarter	34,250	20.0	7,903	23.5	70	179	348	44	3	256	149	119	236
Totals second quarter	29,372	16.6	8,097	27.8	100	223	274	56	14	225	255	116	175
Totals third quarter	30,482	17.2	11,583	37.7	210	177	456	88	1	90	165	42	306
Totals fourth quarter	27,720	15.7	7,803	28.2	100	123	526	70	3	159	187	76	179

TOTALS OF MORTALITY OF THE STATE BY MONTHS — (*Concluded*)

1899	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
January	255	127	2,965	1,304	76	735	818	1,116	1,386	351	400	917	1,553
February	236	101	2,329	1,204	64	651	765	1,045	1,200	320	412	710	1,308
March	220	126	2,145	1,284	81	726	838	1,052	1,290	418	419	588	1,390
April	197	138	1,895	1,187	93	760	820	997	1,206	346	430	532	1,318
May	203	122	1,389	1,169	92	716	763	912	1,117	359	555	484	1,249
June	236	686	883	1,028	76	869	709	746	1,087	403	661	409	1,192
July	193	2,068	748	1,076	70	1,428	755	690	981	396	645	402	1,405
August	171	1,535	599	1,034	75	1,091	679	736	955	394	576	433	1,271
September	183	972	755	947	50	1,065	646	729	937	366	537	327	1,245
October	254	361	1,163	1,064	57	832	753	810	1,017	394	550	417	1,195
November	307	132	1,274	1,027	61	642	729	832	916	370	457	413	1,014
December	331	112	1,793	1,088	82	648	789	941	1,085	416	451	437	1,184
Totals first quarter	711	354	7,439	3,792	221	2,112	2,421	3,213	3,876	1,089	1,231	2,215	4,251
Totals second quarter	636	946	4,167	3,382	261	2,345	2,292	2,655	3,410	1,105	1,646	1,425	3,759
Totals third quarter	547	4,575	2,102	3,057	195	3,584	2,080	2,155	2,873	1,156	1,758	1,162	3,921
Totals fourth quarter	892	605	4,230	3,179	200	2,123	2,271	2,583	3,018	1,180	1,458	1,266	3,393

TOTALS OF MORTALITY OF THE STATE BY MONTHS

1899	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough
January	12,421	21.0	2,590	21.0	65	52	111	12	1	71	51	43	77
February	10,763	19.7	2,506	23.5	70	45	116	20	1	87	37	36	76
March	11,065	19.0	2,807	25.5	75	82	121	12	1	98	61	40	73
April	10,383	17.8	2,627	25.4	77	90	101	20	2	79	68	40	65
May	9,556	16.0	2,366	25.0	78	71	98	14	5	76	85	45	87
June	9,433	16.1	3,104	33.0	145	62	80	22	7	71	102	31	78
July	11,291	18.7	4,819	42.6	238	56	94	34	1	45	82	21	101
August	10,003	17.1	3,696	37.0	215	64	157		.....	26	49	15	120
September	9,188	15.8	3,068	33.4	172	57	205	21	.....	19	34	6	85
October	9,280	16.0	3,175	34.3	110	46	202	27	1	36	24	17	60
November	8,607	14.7	2,187	25.4	101	38	169	25	.....	54	75	26	47
December	9,633	16.5	2,441	25.0	93	39	155	18	2	69	88	33	72
Totals first quarter	34,250	20.0	7,903	23.5	70	179	348	44	3	256	149	119	226
Totals second quarter	29,372	16.6	8,097	27.8	100	223	274	56	14	225	255	116	175
Totals third quarter	30,482	17.2	11,583	37.7	210	177	456	88	1	90	165	42	306
Totals fourth quarter	27,720	15.7	7,803	28.2	100	123	526	70	3	159	187	76	179

TOTALS OF MORTALITY OF THE STATE BY MONTHS — (*Concluded*)

1899	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
[illegible]	255	127	2,965	1,304	76	735	818	1,116	1,386	351	400	917	1,553
[illegible]	236	101	2,329	1,204	84	651	765	1,045	1,200	320	412	710	1,308
[illegible]	220	126	2,145	1,284	81	726	838	1,052	1,290	418	419	588	1,390
April	197	138	1,895	1,187	93	760	820	997	1,206	346	430	532	1,318
May	203	122	1,389	1,169	92	716	763	912	1,117	359	555	484	1,249
June	236	686	883	1,028	76	869	709	746	1,087	403	661	409	1,192
July	193	2,068	748	1,076	70	1,428	755	690	981	396	645	402	1,405
August	171	1,535	599	1,034	75	1,091	679	736	955	394	576	433	1,271
September	183	972	755	947	50	1,065	646	729	937	366	537	327	1,245
October	254	361	1,163	1,061	57	832	753	810	1,017	394	550	417	1,195
November	307	132	1,274	1,027	61	642	729	832	916	370	457	412	1,014
December	331	112	1,793	1,088	82	648	789	941	1,085	416	451	437	1,184
Totals first quarter	711	354	7,439	3,792	221	2,112	2,421	3,213	3,876	1,089	1,231	2,215	4,251
Totals second quarter	636	946	4,167	3,382	261	2,345	2,292	2,655	3,410	1,105	1,646	1,425	3,759
Totals third quarter	547	4,575	2,102	3,057	195	3,584	2,080	2,155	2,873	1,156	1,758	1,162	3,921
Totals fourth quarter	892	605	4,230	3,179	200	2,122	2,271	2,583	3,018	1,180	1,458	1,266	3,393

MORTALITY OF THE MONTHS

MONTHS	Total number of deaths	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1000 deaths from all causes	Cerebro-spinal fever	Typhoid fever	Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough
January:				...								
1886	6,747	2,252	33.3	161	28	66	53	3	138	20	44	192
1887	7,671	2,822	36.8	162	61	72	65	21	101	347	30	57
1888	8,742	2,848	32.5	176	37	64	71	21	265	55	35	40
1889	8,337	2,983	35.2	170	35	89	51	15	242	164	29	105
1890	13,020	2,227	18.2	89	29	117	62	....	93	42	39	114
1891	9,549	2,868	30.0	132	47	138	44	1	182	140	30	92
1892	13,460	3,246	24.1	107	58	116	38	2	294	80	51	48
1893	10,490	3,056	29.1	137	44	120	34	15	237	86	52	94
1894	10,948	3,088	28.2	124	53	205	30	34	146	122	35	55
1895	10,980	3,123	28.6	100	51	108	30	3	103	34	38	78
1896	10,176	3,064	30.0	129	49	158	22	1	113	199	31	73
1897	9,587	2,663	27.7	104	42	108	26	....	76	70	28	58
1898	9,632	2,416	25.0	95	24	122	26	....	123	112	21	44
1899	12,421	2,590	21.0	65	52	111	12	1	71	51	43	77
February:												
1886	6,288	2,011	32 0	153	42	57	66	7	119	7	44	105
1887	6,653	2,439	36.8	159	39	57	46	21	79	239	28	39
1888	8,637	2,748	32.0	154	44	84	49	10	239	55	39	49
1889	8,183	2,933	35.8	170	32	71	81	9	324	136	30	119
1890	9,130	2,370	27.5	118	37	94	39	....	96	50	32	92
1891	8,704	2,813	32.5	141	41	127	32	....	203	127	58	81
1892	10,755	3,139	29.2	123	53	98	33	7	290	89	79	41
1893	9,333	2,774	29.6	136	46	101	29	23	198	80	58	121
1894	9,417	2,943	31.2	125	42	86	24	52	139	125	41	50
1895	10,771	3,049	28.3	85	40	99	9	5	98	44	38	87
1896	9,825	2,892	29.5	116	31	121	28	....	110	192	45	52
1897	9,826	2,743	28.0	97	32	98	23	....	84	89	26	75
1898	9,213	2,543	27.5	91	53	104	22	....	93	84	32	47
1899	10,763	2,506	23.5	70	45	116	20	1	87	37	36	76
March:												
1886	7,918	2,552	32.2	138	63	75	78	6	119	21	46	129
1887	7,830	2,551	32.5	211	42	72	54	24	98	152	42	48
1888	9,405	2,788	30.0	147	49	74	56	35	239	56	48	48
1889	9,547	3,381	35.4	167	43	69	47	1	386	150	33	157
1890	9,844	2,772	30.0	117	47	72	36	3	90	94	47	110
1891	10,672	3,118	29.2	115	63	121	42	....	195	157	50	104
1892	10,978	2,342	21.3	124	77	96	37	3	285	114	70	48
1893	12,000	3,419	24.5	121	89	115	37	29	221	76	41	166
1894	10,195	3,215	31.5	137	52	13	26	47	179	164	46	95
1895	11,379	3,340	29.4	98	53	99	23	....	131	99	51	83
1896	11,080	3,255	29.6	103	54	103	20	1	76	251	47	77
1897	11,574	3,281	29.2	92	55	83	26	2	99	113	45	121
1898	10,300	2,860	28.0	96	72	119	23	....	108	144	24	89
1899	11,065	2,807	25.5	75	82	121	12	1	98	61	40	73
April:												
1886	7,181	2,281	31.8	142	63	69	75	8	129	22	49	123
1887	7,967	2,443	30.6	136	56	56	75	12	112	111	45	30
1888	8,129	2,468	30.0	150	75	45	52	40	250	77	34	48
1889	9,078	3,116	34.5	174	45	78	64	2	363	148	47	137
1890	9,488	2,826	31.8	121	51	73	43	1	78	187	43	77
1891	13,981	2,809	27.3	92	67	103	48	1	273	159	42	106
1892	10,500	3,245	30.7	128	76	77	40	11	248	161	63	60
1893	11,865	3,339	28.1	111	104	111	34	23	199	73	55	133
1894	9,945	3,147	31.5	135	55	94	33	54	184	148	19	104
1895	10,545	3,506	33.3	115	78	115	32	....	118	133	62	107
1896	10,480	3,246	31.0	111	50	87	33	....	81	234	62	8
1897	10,325	2,813	27.3	95	55	79	27	7	81	98	44	90
1898	10,000	2,763	24.3	93	82	80	28	....	84	126	29	118
1899	10,383	2,627	25.9	77	90	101	20	2	78	68	40	65

FOR FOURTEEN YEARS

Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
546	73	1,184	1,008	96	332	327	464	717	142	222	485	678
406	78	1,454	1,057	72	361	365	458	754	178	224	693	812
379	78	1,563	1,089	105	481	412	553	916	208	278	882	715
906	101	1,473	1,061	77	421	469	577	946	194	279	807	896
534	98	3,847	1,801	95	542	553	724	1,107	277	333	653	1,969
489	103	1,761	1,210	81	533	548	737	1,041	220	288	523	1,251
659	94	3,801	1,286	125	686	541	953	1,739	295	362	1,183	1,1 [illegible]
613	141	2,293	1,099	136	568	667	866	1,128	260	329	515	1,243
680	87	2,479	1,220	103	618	664	812	1,164	258	361	707	1,285
547	108	2,578	1,244	81	617	622	916	1,037	290	403	506	1,586
530	127	2,015	1,152	91	614	688	934	959	302	344	464	1,305
476	112	1,762	1,051	83	592	658	964	1,005	322	437	503	1,234
323	113	1,765	1,051	61	642	739	1,013	1,032	346	400	467	1,168
255	127	2,965	1,304	76	735	818	1,116	1,386	351	400	917	1 553
487	70	1,110	946	87	324	347	431	687	157	222	461	555
423	87	1,144	952	86	348	357	443	686	149	204	643	583
667	85	1,644	1,112	105	437	434	563	878	193	233	1,042	674
563	75	1,447	947	100	301	461	574	922	183	256	507	996
518	82	1,950	1,304	74	477	415	586	927	209	284	515	1,399
419	121	1,683	958	107	517	522	672	1,003	205	290	504	1,007
538	99	2,315	1,196	113	620	564	813	1,218	232	340	770	1,247
480	141	1,910	954	102	602	554	779	1,102	218	279	496	1,080
527	89	1,940	1,063	87	578	550	728	1,152	227	283	499	1,175
391	107	2,526	1,161	43	600	670	917	1,085	281	351	598	1,621
444	114	2,012	1,084	100	577	690	879	992	303	398	502	1,151
370	134	1,996	1,117	73	614	628	956	1,071	351	403	495	1,176
275	119	1,738	1,031	75	673	754	763	1,123	309	337	483	1,098
236	101	2,329	1,204	64	651	765	1,045	1,200	320	412	710	1,808
490	76	1,590	1,129	106	395	418	474	858	193	234	660	758
497	624	1,203	664	103	367	377	535	839	197	260	775	857
668	107	1,732	1,218	137	441	422	593	970	204	280	1,090	916
599	115	1,840	1,195	109	468	488	662	1,004	228	237	624	1,092
514	94	1,929	1,238	99	511	471	709	1,051	235	314	520	1,663
413	101	2,307	1,318	112	613	611	771	1,165	283	290	696	1,270
531	108	2,390	1,272	137	638	583	802	1,305	276	323	690	1,192
517	163	2,451	1,286	131	699	695	885	1,330	303	334	589	1,344
546	124	1,814	1,190	110	638	633	760	1,196	262	346	476	1,366
445	137	2,395	1,274	104	691	721	971	1,160	312	417	714	1,499
370	142	2,310	1,490	121	695	744	1,031	1,186	316	414	586	1,050
377	146	2,485	1 290	117	672	737	1,136	1,208	375	441	615	1,531
281	123	1,872	1,166	89	718	810	901	1,251	382	430	511	1,186
220	126	2,145	1,284	81	726	888	1,052	1,290	418	419	588	1,390
330	89	1,188	1,125	90	353	385	483	830	173	251	550	783
479	112	1,341	1,146	100	434	432	512	844	207	282	833	747
448	113	1,332	1,117	90	407	404	549	966	186	265	738	890
580	122	1,656	1,092	125	429	478	574	986	222	311	590	1,029
436	97	1,781	1,138	75	509	484	691	1,046	220	330	460	1,578
370	122	4,357	1,377	92	596	645	869	1,348	271	418	901	1,816
491	131	2,051	1,252	126	666	576	822	1,291	240	400	466	1,233
444	143	2,943	1,329	124	678	637	865	1,413	304	402	572	1,279
571	117	1,748	1,091	85	688	604	741	1,102	298	499	501	1,319
424	151	2,135	1,220	83	666	653	917	1,017	282	433	494	1,425
345	187	2,124	1,189	98	635	641	919	1,080	320	480	471	1,356
360	137	1,893	1,158	105	646	742	979	1,167	375	455	517	1,359
252	137	1,869	1,100	91	671	782	884	1,218	333	435	481	1,200
197	138	1,895	1,187	93	760	820	997	1,206	346	430	552	1,318

MORTALITY OF THE MONTHS

MONTHS	Total number of deaths	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1000 deaths from all causes	Cerebro-spinal fever	Typhoid fever	Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough
May:												
1886	6,659	2,044	31.7	147	55	45	75	5	116	37	43	89
1887	7,328	2,457	32.6	153	52	37	66	42	114	96	41	27
1888	9,032	2,891	42.1	141	62	59	68	42	277	109	50	49
1889	8,357	2,773	33.1	155	42	63	37	....	276	108	40	121
1890	9,194	2,740	31.6	130	62	72	55	....	60	209	34	68
1891	10,213	2,917	28 6	117	57	88	35	....	252	184	37	79
1892	10,223	3,289	32.3	139	69	71	50	13	245	254	56	69
1893	10,718	3,080	28.7	128	159	93	40	21	193	92	43	127
1894	9,286	2,862	30.8	139	53	85	29	37	140	97	36	97
1895	9,452	2,888	30.5	116	46	92	38	1	83	183	36	77
1896	9,541	2,842	30.0	119	51	59	38	1	78	172	40	160
1897	9,266	2,469	27.0	103	51	65	44	7	98	119	35	62
1898	9,748	2,690	27.0	93	81	8	27	....	113	109	30	112
1899	9,556	2,366	25.0	79	71	93	14	5	76	85	45	37
June:												
1886	6,316	2,228	35.3	193	57	33	50	2	74	56	24	72
1887	7,484	2,020	40.0	240	57	54	77	7	109	65	26	39
1888	8,368	3,306	39.7	227	40	45	59	11	233	130	25	61
1889	8,370	3,632	43.4	241	27	45	59	....	154	64	20	129
1890	9,1	3,515	40.2	217	28	69	62	1	68	161	29	90
1891	9,321	3,615	38.8	18	42	80	46	....	207	133	41	65
1892	9,075	3,437	37.7	188	57	5	62	10	183	255	37	59
1893	8,728	2,885	33.0	162	96	83	42	10	154	99	24	77
1894	9,805	3,588	36.6	182	32	72	43	24	121	60	15	79
1895	8,736	3,114	35.6	175	40	81	35	....	71	217	28	95
1896	9,342	3,466	37.0	183	44	66	37	....	50	140	22	85
1897	9,028	2,865	31.5	140	51	66	31	7	82	86	31	74
1898	8,637	2,458	30.0	122	104	70	22	....	82	99	17	111
1899	9,433	3,104	33.0	146	62	80	22	7	71	102	31	73
July:												
1886	9,376	5,021	53.5	374	44	75	61	....	49	80	10	114
1887	11,363	6,049	52.7	389	51	102	61	12	69	66	15	48
1888	10,300	5,363	52.0	380	35	73	51	2	141	111	23	108
1889	10,806	5,563	51.4	352	46	117	61	1	69	83	14	112
1890	11,606	5,602	50.5	327	56	101	56	....	45	91	12	133
1891	11,370	5,782	50.8	329	57	97	44	....	181	93	19	48
1892	13,555	6,855	52.1	340	59	131	61	8	75	150	20	136
1853	12,837	6,246	50.5	324	86	87	45	16	79	75	13	92
1894	12,516	6,160	50.0	335	50	93	44	19	76	55	14	121
1895	11,681	5,841	50.0	326	49	108	26	....	32	130	20	143
1896	12,558	6,192	49.0	305	64	103	50	....	55	85	12	117
1897	11,235	5,086	45.5	272	54	87	36	4	69	76	16	66
1898	11,441	4,945	43.0	255	68	89	24	....	59	52	13	178
1899	11,291	4,819	42.6	239	56	94	34	1	45	82	21	101
August:												
1886	7,142	3,312	46.3	314	49	104	66	....	43	45	11	134
1887	9,042	4,130	45.3	383	41	194	98	6	55	24	16	57
1888	10,017	4,867	48.7	345	29	174	87	6	120	73	9	144
1889	9,373	4,059	40.7	280	38	224	96	....	54	22	10	133
1890	10,642	4,480	48.8	292	49	167	86	....	35	69	11	153
1891	10,720	4,829	45.0	297	38	171	67	....	190	41	14	64
1892	10,903	4,933	45.2	292	54	182	56	18	61	51	19	138
1893	11,037	4,954	45.0	298	55	157	62	11	63	44	14	129
1894	10,399	4,664	44.8	283	44	183	41	6	48	19	17	129
1895	11,050	4,562	45.0	282	46	156	39	....	26	76	17	156
1896	12,475	4,789	58 4	246	43	171	48	....	19	54	20	132
1897	10,084	4,021	40.0	240	38	124	41	....	19	40	13	84
1898	11,302	4,811	42.5	255	40	181	49	....	26	26	16	162
1899	10,003	3,696	37.0	216	64	157	23	....	26	49	15	120

FOR FOURTEEN YEARS—(*Continued*)

Croup and diptheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
394	123	835	1,085	78	355	363	448	711	186	331	445	860
540	142	1,098	1,052	71	379	378	445	870	191	359	714	814
627	131	1,438	1,195	98	458	481	570	1,009	211	370	738	988
492	123	1,172	1,102	86	511	421	599	951	227	377	548	1,061
420	142	1,538	1,077	95	539	508	691	999	273	371	486	1,554
339	127	2,128	1,234	114	581	555	741	1,021	248	434	629	1,349
480	118	1,972	1,207	108	617	610	736	1,159	270	461	443	1,186
489	175	1,944	1,239	86	660	564	834	1,287	286	544	508	1,284
585	136	1,333	1,093	93	644	577	745	1,056	265	487	427	1,271
390	157	1,459	1,149	83	628	669	903	1,022	270	503	413	1,250
292	205	1,474	1,193	93	647	644	852	1,066	326	555	400	1,155
368	113	1,357	1,054	80	637	716	885	1,001	386	478	449	1,211
223	127	1,576	1,127	84	695	757	915	1,171	375	478	469	1,198
203	122	1,389	1,169	93	716	763	912	1,117	359	555	484	1,249
380	465	626	911	74	382	323	470	714	188	298	397	702
475	887	587	946	56	516	404	458	784	190	362	597	806
490	811	778	868	94	516	393	491	1,075	237	411	472	1,130
423	1,112	744	919	77	639	386	485	951	222	376	414	1,133
364	1,087	972	984	83	679	497	541	1,000	227	452	347	1,483
319	808	1,098	978	103	720	479	678	1,127	224	534	353	1,226
309	676	1,060	1,005	89	692	449	693	1,132	243	545	366	1,680
359	478	1,010	1,065	67	612	503	679	1,108	240	560	384	1,073
575	739	1,037	982	84	723	583	718	1,180	307	628	419	1,334
338	627	825	974	63	665	592	718	927	275	620	357	1,188
362	915	877	1,097	69	793	625	782	947	290	551	385	1,205
354	503	945	1,002	83	784	643	864	1,037	325	530	362	1,178
174	372	857	1,007	96	783	656	780	1,031	367	581	381	1,062
230	686	883	1,028	76	869	709	746	1,087	403	661	409	1,192
384	2,696	541	949	56	646	357	449	907	166	373	490	989
375	3,669	477	956	90	738	406	429	1,259	227	499	729	1,185
411	2,957	588	966	73	784	383	492	930	210	397	454	1,111
305	3,092	537	1,012	63	844	449	542	1,029	227	357	502	1,394
293	2,916	706	1,073	60	1,024	497	548	1,092	242	553	395	1,718
304	2,906	717	1,032	67	1,036	502	652	1,158	239	458	363	1,397
349	3,629	801	1,093	96	1,264	556	700	1,648	256	842	447	1,503
379	3,206	746	1,073	72	1,219	552	729	1,252	300	598	383	1,333
470	3,258	688	1,094	64	1,184	527	638	1,282	296	683	392	1,466
323	2,974	627	1,040	83	1,135	599	732	1,000	322	549	364	1,425
293	3,086	785	1,050	72	1,267	661	842	1,169	349	649	409	1,541
258	3,396	693	991	92	1,117	564	804	1,090	323	750	410	1,383
159	2,298	710	1,116	67	1,244	646	793	1,118	380	762	388	1,279
193	2,068	748	1,076	70	1,428	755	690	981	396	645	402	1,405
307	1,484	480	861	58	528	330	309	657	153	266	458	798
302	2,158	457	926	67	665	361	442	933	199	354	731	956
345	2,465	528	959	74	647	402	473	1,010	227	370	530	1,345
327	1,901	591	1,026	63	680	437	540	936	254	373	477	1,196
233	2,192	666	1,064	70	871	442	537	1,125	236	512	375	1,749
266	2,405	675	1,041	87	925	480	612	1,133	257	617	477	1,235
275	2,328	704	1,056	73	985	512	662	1,208	279	572	369	1,301
328	2,406	661	1,040	13	986	534	676	1,167	283	600	432	1,314
383	2,068	621	1,031	71	945	573	626	1,011	295	543	405	1,331
305	2,303	668	1,051	67	1,027	523	741	1,034	357	597	457	1,404
297	2,326	636	1,059	69	1,062	644	803	1,113	294	1,695	508	1,518
249	1,799	597	1,027	92	1,023	617	808	879	387	600	387	1,265
134	2,345	613	1,019	67	1,288	651	749	1,062	390	709	430	1,349
171	1,535	590	1,034	75	1,091	679	736	955	394	576	433	1,271

MORTALITY OF THE MONTHS

MONTHS	Total number of deaths	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 10.0 deaths from all causes	Cerebro-spinal fever	Typhoid fever	Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough
September:												
1886	7,239	3,206	44.3	272	42	176	74	....	36	26	19	100
1887	8,267	3,218	39.0	261	38	248	141	10	83	16	11	44
1888	8,433	3,877	45 9	294	31	279	102	12	114	43	11	142
1889	8,264	3,179	38.4	238	19	247	98	2	53	9	14	90
1890	9,111	3,356	39.0	224	30	234	84	....	40	29	15	102
1891	9,662	3,984	41.2	247	59	287	83	...	99	21	13	60
1892	9,610	3,737	38 8	235	48	280	74	9	78	37	16	98
1893	9,346	3,718	39.8	248	29	227	68	23	84	24	11	85
1894	9,525	3,948	41.5	244	28	229	51	9	33	15	11	102
1895	10,011	4,161	41.5	250	52	220	50	....	26	36	15	119
1896	9,467	3,396	36.0	197	44	221	65	....	26	31	11	102
1897	9,588	3,432	36.5	188	51	157	34	....	31	19	12	76
1898	11,481	4,320	37.5	230	47	333	82	....	26	20	6	120
1899	9,186	3,068	33.4	172	57	205	21	....	19	34	6	85
October:												
1886	7,370	2,730	37.0	226	32	194	118	2	51	53	17	88
1887	7,370	2,317	31.3	201	38	182	104	4	113	15	13	14
1888	7,886	2,522	32.0	196	33	282	109	12	125	43	19	102
1889	8,050	2,288	28.4	177	21	261	87	....	57	7	13	70
1890	8,640	2,665	32.7	155	26	240	87	....	62	47	6	84
1891	9,718	3,454	35.5	200	47	290	70	....	118	36	14	54
1892	9,092	2,894	31.8	174	35	205	72	27	96	26	18	78
1893	8,981	2,994	33.4	185	56	253	50	19	65	14	16	56
1894	9,008	2,936	32.5	180	22	234	46	5	32	15	6	72
1895	9,320	2,951	31.5	167	36	265	50	2	36	46	13	95
1896	8,676	2,481	28.2	130	27	195	57	....	35	37	12	67
1897	9,080	2,055	22.6	138	30	173	44	....	49	33	15	59
1898	9,632	2,868	30.0	140	37	281	49	....	38	10	14	59
1899	9,280	3,175	34.2	111	46	202	27	1	36	24	17	69
November:												
1886	6,872	2,423	35.2	213	47	157	98	1	68	185	18	49
1887	7,292	2,171	29.7	200	29	149	80	4	130	30	25	22
1888	6,987	2,111	30.2	174	21	153	61	8	171	52	16	90
1889	7,285	2,025	27.7	139	21	169	68	....	56	25	21	55
1890	8,209	2,199	28.5	146	29	216	68	....	102	74	17	62
1891	8,727	2,528	29.0	151	39	241	61	2	179	31	26	31
1892	8,448	2,540	30.1	167	39	184	50	18	127	51	26	77
1893	8,458	2,324	27.5	157	45	180	30	27	77	56	14	50
1894	8,146	2,254	27.6	151	25	189	30	10	52	15	17	53
1895	8,372	2,287	27.4	134	24	204	43	....	51	96	18	57
1896	7,888	2,165	27.5	113	25	132	21	....	48	45	18	44
1897	8,325	2,045	24.5	108	31	151	28	....	62	63	12	27
1898	8,709	1,970	22.7	90	36	189	30	1	32	18	17	52
1899	8,607	2,187	25.4	101	38	169	25	....	54	75	28	47
December:												
1886	7,603	2,868	37.8	200	50	112	85	5	69	333	42	49
1887	7,886	2,497	31.6	190	36	104	78	12	204	44	35	21
1888	8,369	2,495	29.8	179	28	138	49	13	278	138	33	113
1889	8,483	2,311	27.0	126	38	117	53	....	78	33	22	84
1890	8,761	2,635	30.0	135	30	157	59	....	144	117	36	71
1891	11,241	3,023	26.9	133	32	183	47	....	246	78	33	41
1892	9,528	2,754	28.9	146	24	147	40	17	195	82	22	82
1893	10,600	2,834	26.7	117	46	158	27	35	106	70	25	73
1894	9,000	2,567	28.5	133	33	139	35	11	82	35	34	53
1895	9,438	2,771	29 5	134	31	169	34	....	75	172	34	73
1896	9,074	2,378	26.0	112	28	126	30	....	63	50	20	59
1897	9,160	2,195	25.0	97	28	160	20	....	91	61	26	43
1898	10,877	2,269	21.0	70	35	156	22	....	53	38	18	59
1899	9,883	2,441	25.0	93	39	155	18	2	69	83	33	73

FOR FOURTEEN YEARS—(*Concluded*)

Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of the circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
322	1,186	497	919	61	588	352	386	674	165	298	474	848
559	1,009	697	989	45	522	352	503	722	232	331	765	959
308	1,440	649	895	69	600	343	494	895	198	303	510	995
343	1,094	646	946	65	638	794	483	870	206	326	446	872
247	1,196	710	1,027	47	768	418	520	871	236	375	450	1,712
334	1,434	720	1,039	65	924	479	596	997	239	449	421	1,293
372	1,266	834	1,010	69	877	502	629	896	280	459	461	1,208
411	1,395	713	912	68	863	528	597	1,026	268	443	391	1,221
389	1,454	668	988	54	852	492	612	970	268	488	399	1,413
322	1,672	675	1,009	65	923	577	703	968	277	522	452	1,308
294	1,077	826	1,023	57	848	556	810	905	306	543	417	1,205
259	1,171	785	998	70	949	602	825	933	327	651	421	1,217
135	1,872	768	1,076	70	1,162	647	856	1,116	378	927	478	1,362
183	972	755	947	50	1,065	646	729	937	366	537	327	1,247
618	493	845	985	50	497	366	409	692	193	294	549	825
707	297	853	942	53	458	367	475	759	207	309	717	743
432	386	1,031	1,034	70	518	392	495	791	232	278	512	984
570	339	959	1,016	64	557	431	595	899	238	343	491	1,032
382	360	1,001	1,061	71	635	485	597	884	238	366	470	1,538
527	794	1,012	1,124	60	832	558	695	1,028	259	430	494	1,281
551	491	1,132	996	62	709	547	694	1,024	263	448	420	1,198
599	538	947	1,070	58	771	542	658	1,010	278	422	363	1,206
551	635	901	1,013	54	757	540	690	959	298	452	477	1,249
458	554	749	1,112	67	761	630	767	840	319	511	445	1,564
261	338	1,123	990	70	689	605	908	815	323	455	437	1,132
370	447	1,090	1,070	79	717	608	820	911	358	568	437	1,205
180	687	1,044	1,052	65	943	673	848	1,015	376	526	443	1,292
254	361	1,163	1,064	57	832	753	810	1,017	394	550	417	1,195
675	166	1,056	982	70	328	361	448	576	166	264	494	661
844	117	1,041	964	67	370	375	490	709	178	301	718	640
588	113	1,051	893	58	414	398	522	796	164	300	443	726
501	110	1,133	944	67	450	452	599	822	199	311	419	868
467	124	1,207	1,019	74	518	435	554	851	208	387	409	1,388
567	143	1,507	1,017	65	563	501	656	967	237	404	437	1,033
697	137	1,445	940	55	582	490	674	845	244	377	382	1,008
706	152	1,242	957	57	595	529	691	925	242	411	469	1,009
701	146	1,130	1,020	48	566	575	661	880	262	383	392	991
483	150	1,348	979	71	583	584	750	798	263	473	370	1,027
429	132	1,184	876	66	524	599	828	772	330	443	355	1,017
339	191	1,153	977	78	605	667	867	841	308	432	418	1,075
242	165	1,288	1,049	54	625	681	918	998	380	450	451	1,027
307	132	1,274	1,027	61	642	729	832	916	370	457	412	1,014
664	107	1,427	1,047	63	338	376	474	781	167	233	537	644
883	78	2,205	1,022	75	441	408	548	798	208	295	761	636
621	87	1,392	1,017	96	434	461	584	917	232	345	577	817
546	110	1,635	1,127	83	463	466	656	950	238	288	455	1,046
497	80	1,756	1,045	85	533	483	643	1,000	257	285	454	1,029
725	115	2,731	1,090	100	646	593	801	1,183	296	416	732	1,153
673	113	1,737	1,145	78	575	572	779	1,182	259	404	416	1,026
678	123	2,445	1,099	80	581	610	792	1,078	254	359	724	1,237
672	103	1,555	1,117	58	551	628	719	1,033	269	284	401	1,088
563	115	1,741	1,054	79	596	609	931	866	306	510	399	1,083
520	127	1,454	1,082	66	604	673	899	927	330	495	443	1,098
335	121	1,541	1,056	61	610	679	952	981	344	427	501	1,118
244	141	2,250	1,185	71	657	845	1,091	1,177	369	479	562	1,425
331	112	1,793	1,088	82	648	789	941	1,085	416	451	437	1,184

THE INFANT MORTALITY OF 1899

Of the 121,821 deaths, 35,386 or 29.0 per cent occurred under the age of five years. The average for the 10 years preceding was 40,000, or 35.0 per cent of the total deaths at all ages. There were 1700 more deaths under the age of five years in 1898 than in 1899. The saving was chiefly in the Maritime district, but occurred in all the districts except the Lake Ontario and western.

THE ZYMOTIC MORTALITY

Twelve per cent of the deaths were from the common zymotic diseases, against an average of 17.0 per cent. In the Maritime and Lake Ontario and western districts about 13.0 per cent of the deaths were zymotic; in the Hudson valley district, 12.4 per cent; in the Adirondack and Northern, 11.0; Mohawk valley, 9.5; the Southern tier, 9.0; East central, 8.0; and West central, 7.0. Preceding tables show the distribution.

EPIDEMIC INFLUENZA (GRIPPE)

An annually recurring epidemic of this disease during the autumn, winter and part of the spring has obtained since 1889. The prevalence and mortality from it is only estimated, for no separate record is kept—in fact many more deaths have clearly been due to it than have been reported as directly from it. The mortality increased by it is in acute respiratory diseases, old age, and enfeebled conditions reported as unclassified.

An epidemic was in progress at the beginning of the year, having been estimated to have caused 1800 deaths in December, 1898. The estimate of its mortality in January was 3000; in February, 2000; in March, 1300; and in April, 750. Thus, 7000 of the deaths of 1899 were attributable to grippe, the entire epidemic having a mortality of 8800.

Again recurring in December, 1899, it appeared to increase the mortality of that month by 600.

The following is the historic record of the recurrence of this disease since 1889:

TIME OF OCCURRENCE	Acme reached	Duration	Number of deaths
1889-90	January, 1890	Three months	5,000
Spring of 1891	April, 1891	Six months	8,000
1891-2	January, 1892	Five months	8,000
1893	April, 1893	Six months	6,000
1893-4	January, 1894	Four months	3,000
1895	February, 1895	Four months	5,000
1896	March, 1896	Five months	2,750
1897	March, 1897	Four months	3,000
1898	March, 1898	Six months	2,500
1899	January, 1899	Five months	8,800

TYPHOID FEVER

From this there were 1604 deaths, which is a little below the average of 1650 of the past 10 years. In 1898 there were 1800 deaths from it, not including nearly 100 deaths in Camp Wyckoff, though the mortality was then increased by importation from the army in Cuba.

This table shows the distribution of it as compared with deaths from other diseases for a series of years:

In each 1000 deaths there were from typhoid fever in the—

	1894	1895	1896	1897	1898	1899
Maritime district	8	8	8	8	10	8
Hudson valley district	22	33	35	21	28	26
Adirondack and northern district	22	25	26	18	23	26
Mohawk valley district	21	20	13	17	22	13
Southern tier district	26	26	32	14	20	20
East central district	22	20	18	12	21	19
West central district	16	10	13	10	10	11
Lake Ontario and western district	25	20	16	16	21	17
Entire state	18	14	13	12	15	13

DIPHTHERIA

From this there were 2786 deaths, which is a small increase above the number in 1898, but in both years there have been very much fewer deaths than in the years before them, the average yearly mortality of the 10 preceding years having been 5500. They were distributed, relatively to other diseases, as follows:

In each 1000 deaths there were from diphtheria in the—

	1894	1895	1896	1897	1898	1899
Maritime district	71	53	45	43	21	28
Hudson valley district	31	28	26	23	18	19
Adirondack and northern district	28	18	27	25	11	10
Mohawk valley district	28	11	15	20	15	19
Southern tier district	39	21	15	17	13	13
East central district	20	13	20	22	16	9
West central district	17	14	10	14	6	13
Lake Ontario and western district	40	39	40	34	16	16
Entire state	56	41	38	35	23	23

SCARLET FEVER

This disease caused 730 deaths. This is less than in any year for the past 10. As many as 2254 deaths have been reported from scarlet fever in one year, and the average has been 1369. Although certainly prevalent to a considerable degree and extensively distributed, for the past six years its mortality has been, on account of mildness of types, much less than during the four years preceding. The deaths were most in the winter and spring months. Of the 730 deaths, 550 occurred in the Maritime district.

MEASLES

There were reported 756 deaths from this cause. Its mortality and prevalence are exceedingly variable, in some years double the number of deaths from it having occurred. The average of the past 10 years has been 1077. Of the 756 deaths, 600 were reported from the Maritime district, 73 from the Lake Ontario and western, 53 from the Hudson valley district, leaving but 30 for the more rural parts of the state.

WHOOPING COUGH

This caused 886 deaths, or more than either scarlet fever, measles or cerebro-spinal meningitis, and is exceeded only by diarrhea, diphtheria and typhoid fever. Nevertheless it is below the average, which is 1057 deaths yearly. Its largest mortality occurred, as usual, in July and August. It was more generally distributed than scarlet fever and measles.

CEREBRO-SPINAL MENINGITIS

There were 702 deaths from this disease, which is excessive, the average having been 577. It has shown an increasing mortality for two or three years. The variation in the health districts was four to seven deaths from this disease to each 1000 deaths from all causes.

MALARIAL DISEASES

The mortality from this was unusually small, 248 or less than half the average.

DIARRHEAL DISEASES

This is the largest factor in the mortality of the zymotic class, 6480 or almost half the total of the class. Still it is 2200 below the average and has the smallest mortality of any year of our record. In the first quarter of the year there were 354 deaths; in the second, 946; in the third, 4575; and in the fourth, 605. The following shows its relative distribution, and comparatively for six years:

In each 1000 deaths there were from diarrheal diseases in the—

DISTRICTS	1894	1895	1896	1897	1898	1899
Maritime	80	80	71	70	74	55
Hudson valley	63	63	72	51	60	52
Adirondack & northern	57	58	53	45	60	50
Mohawk valley	65	55	60	43	65	42
Southern tier	58	50	50	39	60	38
East central	64	56	62	38	54	34
West central	40	45	53	31	52	34
Lake Ontario and western	104	100	93	76	90	70
Entire state	76	75	73	63	70	53

SMALLPOX

This caused 21 deaths, all of which occurred in the Maritime district, save 1 in Rochester, 1 in Troy and 1 in Waterford. The outbreak in the western part of the state in 1898 continued till mid-summer of 1899, reaching 45 localities in 14 counties and about 320 individuals, only 1 of the 320 ending fatally. A full account of this epidemic, covering this extension into 1899, appeared in the report of the Board for 1898. Sporadic cases of

origin separate from this outbreak, and originating outside of the state, occurred in 13 localities, only one of them being extensive, among negro laborers in brickyards at Coeymans and Athens; these latter cases had a direct origin from one of the southern states whence the laborers came. There were seven cases in the Coeymans yards, and 34 in those at Athens. They were, with the exception of two or three village negroes who came in contact with the brickyard laborers at Athens, limited to the yards. At the end of the year the state was practically free from smallpox. This is much to the credit of our health authorities when it is known that in almost every state in our vicinity the disease has continued to prevail, often to a greater extent than it did at the height of our 1898 epidemic, and it still continues in many of them down into 1900. The type of the disease here as elsewhere has been one of extraordinary mildness.

CONSUMPTION

This is not included among the diseases grouped as zymotic. There were reported from this cause 13,412 deaths, which is a little above the average, 1312. There is, however, little variation from year to year. It is increased somewhat by the grippe epidemics, which hasten the death of some affected by it who take the grippe. Partly for this reason the mortality was largest in the winter months; there were 3792 deaths in the first quarter; 3382 in the second; 3057 in the third; and 3179 in the fourth. The deaths reported are only those from pulmonary consumption.

The following shows its distribution relatively to the total mortality.

In each 1000 deaths there were from consumption in the—

DISTRICTS	1894	1895	1896	1897	1898	1899
Maritime	110	112	110	108	115	125
Hudson valley	111	107	115	112	115	110
Adirondack and northern	115	114	116	108	112	99
Mohawk valley	111	113	104	95	106	91
Southern tier	81	86	86	75	75	83
East central	108	96	93	96	90	85
West central	118	100	90	90	90	87
Lake Ontario and western	103	105	101	95	100	93
Entire state	108	109	110	108	108	110

CANCER

This caused 4533 deaths, the average of the past 10 years having been 3408. Season had little influence; in the first quarter of the year there were 1089 deaths; in the second, 1105; in the third, 1156; in the fourth, 1180. The geographical distribution of cancer has not shown very much variation in estimates made in former years. In the eight sanitary districts, in the order given in previous tables, the percentage of deaths from cancer to deaths from all causes were as follows: 3.3 per cent.; 3.5; 4.0; 4.2; 4.6; 5.4; 4.7; 4.6. The East central has the highest proportion, and in the last report it was found that the largest mortality per population was in it, both in 1898 and in 1896; the same continues true as shown:

In each 10,000 population the deaths from cancer were in the—

DISTRICTS	1896	1898	1899
Maritime	5.5	5.7	5.7
Hudson valley	6.0	6.0	5.6
Adirondack and northern	5.2	5.4	5.4
Mohawk valley	5.1	6.7	6.5
Southern tier	5.6	6.0	6.4
East central	7.4	7.1	7.4
West central	6.0	7.0	6.5
Lake Ontario and western	6.1	6.1	6.1

In five large cities there were 5.5 deaths per 10,000 population in the year.

LOCAL DISEASES

Acute respiratory diseases are recorded as having caused 17,938 deaths, the average being 17,588; diseases of the digestive system 10,163, average 8610; diseases of the urinary system 9064, average 7000; diseases of the circulatory system 10,606, average 9105; diseases of the nervous system 13,177, average 12,625.

ACCIDENT AND VIOLENCE

There were 6093 deaths during the year from these causes. The average for 10 years was 5533. There have been more deaths from accident and violence for the last five years than in the years preceding. The least mortality is in the winter months, the greatest in the summer, from heat stroke and drowning, mainly.

OLD AGE

To this cause of death have been attributed 6098 deaths, and during the 10 years the yearly average has been 5770. The winter months carry the largest quota, the summer months the least. A recent count showed that the number of deaths above the age of 70 years was about double that attributed to old age.

UNCLASSIFIED CAUSES OF DEATH

1532 deaths, or about the average for the past 10 years, were placed in this list, 12.5 per cent of the total mortality. In this class come deaths incident to birth and congenital weakness, from rheumatism, indefinite causes of death and deaths from causes not properly placed in other classes which are specified.

Record of each reporting local board of health, showing total deaths from all causes and from the principal zymotic diseases for 1899, *by counties*

(Cities are printed in SMALL CAPS, villages in *italic* and towns in roman type)

NAME OF PLACE	Population	All deaths	Cerebro spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping cough	Diphtheria	Diarrhea	Consumption
Albany county	165,571	3,240	17	134	8	18	14	27	90	147	361
ALBANY	94,151	1,991	13	82	1	10	2	12	54	72	248
COHOES	23,910	483	1	21	2	.....	9	14	18	40	55
Berne	1,947	39	.....	1	.....	.....	.....	.....	.....	1	1
Bethlehem	4,226	81	.....	.....	.....	.....	.....	.....	.....	2	3
Coeymans	3,952	51	.....	.....	.....	1	.....	.....	.....	.....	6
Guilderland	3,530	42	.....	2	.....	.....	.....	.....	1	1	4
Knox	1,244	20	.....	.....	.....	.....	.....	.....	.....	.....	1
New Scotland	3,058	31	.....	2	.....	.....	.....	.....	.....	1	2
Rensselaerville	1,795	26	.....	.....	.....	.....	.....	.....	.....	.....	.....
Colonie	7,035	118	1	.....	.....	1	1	.....	4	2	6
Westerlo	1,632	31	.....	.....	.....	.....	.....	.....	.....	.....	2
WATERVLIET	14,321	258	1	15	.....	1	2	.....	9	22	25
Green Island	4,770	66	1	1	.....	.....	---	1	4	6	8
Allegany county	41,501	608	.....	5	.....	1	1	.....	6	5	33
Alfred	1,615	10	.....	.....	.....	.....	.....	.....	.....	.....	.....
Allen	655	7	.....	.....	.....	.....	.....	.....	.....	.....	.....
Alma	1,182	11	.....	.....	.....	.....	.....	.....	.....	.....	.....
Almond	1,436	20	.....	1	.....	.....	.....	.....	.....	1	2
Amity	2,216	31	.....	1	.....	.....	.....	.....	.....	.....	1
Andover	1,869	32	.....	.....	.....	.....	.....	.....	1	.....	1
Angelica	1,639	45	.....	.....	.....	.....	.....	.....	.....	.....	3
Belfast	1,574	24	.....	.....	.....	.....	.....	.....	.....	.....	.....
Birdsall	634	9	.....	.....	.....	.....	.....	.....	.....	.....	.....

Record of each reporting local board of health, etc.—(Continued)

NAME OF PLACE	Population	All deaths	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping cough	Diphtheria	Diarrhea	Consumption
Allegany county—(*Continued*)											
Bolivar	2,035	25	.....	.....	.....	.....	.....	.....	.....	.....	1
Burns	1,424	24	.....	.....	.....	.....	.....	.....	.....	.....	4
Caneadea	1,310	18	.....	.....	.....	.....	.....	.....	.....	1	.....
Centerville	833	11	.....	.....	.....	.....	.....	.....	.....	.....	.....
Clarksville	836	6	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cuba	2,369	50	.....	.....	.....	.....	.....	.....	.....	.....	4
Friendship	2,136	28	.....	.....	.....	.....	.....	.....	.....	.....	1
Genesee	1,052	8	.....	.....	.....	.....	.....	.....	.....	.....	.....
Granger	800	12	.....	.....	.....	.....	.....	.....	.....	1	.....
Grove	812	9	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hume	1,749	30	.....	.....	.....	.....	.....	.....	.....	1	1
Independence	1,280	26	.....	.....	.....	.....	1	.....	.....	.....	2
New Hudson	926	22	.....	.....	.....	.....	.....	.....	.....	.....	1
Rushford	1,300	30	.....	.....	.....	.....	.....	.....	.....	.....	5
Scio	1,281	15	.....	.....	.....	.....	.....	.....	.....	.....	1
Ward	547	5	.....	.....	.....	1	.....	.....	.....	.....	.....
Wellsville	4,981	70	.....	2	.....	.....	.....	.....	5	1	6
West Almond	601	9	.....	.....	.....	.....	.....	.....	.....	.....	.....
Willing	1,246	3	.....	1	.....	.....	.....	.....	.....	.....	.....
Wirt	1,163	18	.....	.....	.....	.....	.....	.....	.....	.....	.....
Broome county	69,149	1,136	11	15	1	4	.....	18	17	53	88
BINGHAMTON	39,647	681	5	10	1	4	.....	12	12	45	72
Barker	1,072	21	.....	.....	.....	.....	.....	.....	.....	.....	.....
Binghamton	847	14	.....	.....	.....	.....	.....	.....	.....	.....	.....
Chenango	1,372	21	.....	.....	.....	.....	.....	.....	1	2	.....
Colesville	2,773	32	.....	.....	.....	.....	.....	.....	.....	1	.....

Conklin	946	13	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dickinson	728	26	.....	.....	.....	.....	.....	.....	.....	.....	1
Fenton	1,171	24	.....	1	.....	.....	.....	.....	1	.....	1
Kirkwood	918	17	.....	.....	.....	.....	.....	.....	.....	1	.....
Lisle	1,710	30	.....	1	.....	.....	.....	1	1	.....	.....
Maine	1,534	24	.....	.....	.....	.....	.....	.....	.....	.....	1
Nanticoke	666	9	.....	.....	.....	.....	.....	.....	.....	1	.....
Sanford	3,514	36	.....	.....	.....	.....	.....	.....	.....	1	1
Triangle	1,727	19	.....	.....	.....	.....	.....	.....	1	1	.....
Union	5,707	89	6	3	.....	.....	.....	.....	1	1	7
Vestal	1,850	36	.....	.....	.....	.....	.....	.....	.....	.....	2
Windsor	2,967	44	.....	.....	.....	.....	.....	.....	.....	.....	3
Cattaraugus county	**65,643**	**805**	**1**	**10**	**1**	**2**	**2**	**6**	**3**	**24**	**35**
OLEAN	9,462	106	.....	2	.....	1	1	.....	2	4	7
Allegany	3,692	36	.....	1	.....	.....	.....	1	.....	2	1
Ashford	1,645	17	.....	.....	.....	.....	.....	.....	.....	.....	1
Carrollton	2,035	16	.....	.....	.....	.....	.....	.....	1	.....	.....
Cold Spring	1,030	9	.....	.....	.....	.....	.....	.....	.....	.....	.....
Conewango	1,224	10	.....	.....	.....	.....	.....	.....	.....	.....	1
Dayton	1,691	28	.....	.....	.....	.....	.....	2	.....	.....	1
East Otto	1,138	8	.....	1	.....	.....	.....	.....	.....	.....	.....
Elko	571	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ellicottville	2,038	22	.....	.....	.....	.....	.....	.....	.....	3	.....
Farmersville	1,043	15	.....	.....	.....	.....	.....	.....	.....	.....	.....
Franklinville	2,514	40	.....	.....	.....	.....	1	.....	.....	2	.....
Freedom	1,209	16	.....	.....	.....	.....	.....	.....	.....	.....	1
Great Valley	1,697	19	.....	.....	.....	.....	.....	1	.....	1	1
Hinsdale	1,218	14	.....	.....	.....	.....	.....	.....	.....	.....	1
Humphrey	794	6	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ischua	832	10	.....	.....	.....	.....	.....	.....	.....	.....	.....
Leon	1,003	22	.....	.....	.....	.....	.....	.....	.....	1	1
Little Valley	1,616	24	.....	1	1	.....	.....	.....	.....	.....	.....
Lyndon	609	6	.....	.....	.....	.....	.....	.....	.....	.....	.....
Machias	1,557	32	.....	.....	.....	.....	.....	.....	.....	.....	1
Mansfield	968	16	.....	1	.....	.....	.....	.....	.....	.....	1
Napoli	967	11	.....	.....	.....	1	.....	.....	.....	.....	1
New Albion	2,372	36	.....	.....	.....	.....	.....	.....	.....	.....	2
Olean	4,854	61	1	1	.....	.....	.....	.....	.....	.....	3

Record of each reporting local board of health, etc.—Continued)

NAME OF PLACE.	Population	All deaths	Cerebro-spinal meningitis.	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping cough	Diphtheria	Diarrhœa	Consumption
Cattaraugus county—(*Continued*)											
Otto	1,105	20	.....	.....	.....	.....	.....	2	.....	1	.....
Perrysburgh	1,216	18	.....	.....	.....	.....	.....	.....	.....	.....	3
Persia	1,940	22	.....	1	.....	.....	.....	.....	.....	.....	2
Portville	2,319	29	.....	1	.....	.....	.....	.....	.....	1	1
Randolph	2,605	41	.....	.....	.....	.....	.....	.....	.....	1	3
Red House	973	5	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salamanca	4,251	46	.....	.....	.....	.....	.....	.....	.....	8	3
Salamanca	923	20	.....	1	.....	.....	.....	.....	.....	.....	.....
South Valley	713	3	.....	.....	.....	.....	.....	.....	.....	.....	.....
Yorkshire	1,738	21	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cayuga county	66,234	1,060	6	10	1	2	.....	1	20	29	64
AUBURN	30,345	487	3	7	.....	2	.....	1	16	31	41
Aurelius	1,563	25	.....	.....	.....	.....	.....	.....	.....	1	.....
Brutus	2,582	41	.....	.....	.....	.....	.....	.....	2	1	1
Cato	1,624	41	.....	1	.....	.....	.....	.....	.....	.....	4
Conquest	1,360	17	1	.....	.....	.....	.....	.....	.....	.....	.....
Fleming	1,076	15	.....	.....	.....	.....	.....	.....	.....	.....	2
Genoa	2,075	33	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ira	1,668	24	.....	.....	.....	.....	.....	.....	.....	.....	2
Ledyard	1,909	27	1	.....	1	.....	.....	.....	.....	.....	1
Locke	1,079	19	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mentz	1,914	34	.....	.....	.....	.....	.....	.....	.....	1	2
Montezuma	991	25	.....	.....	.....	.....	.....	.....	1	1	1
Moravia	2,373	45	.....	.....	.....	.....	.....	.....	1	.....	2
Niles	1,402	18	.....	.....	.....	.....	.....	.....	.....	.....	.....
Owasco	1,331	19	.....	.....	.....	.....	.....	.....	.....	.....	1

Scipio	1,657	22							1	
Sempronius	896	5								
Sennett	1,440	31							1	2
Springport	1,770	17								4
Sterling	2,516	47							1	
Summer Hill	779	12		2					1	
Throop	1,038	12	1							1
Venice	1,448	20								
Victory	1,398	24								
Chautauqua county	88,314	1,163	3	23		2	4	15	38	91
DUNKIRK	11,616	147		2				7	12	7
JAMESTOWN	22,892	297		9		2	1	2	15	38
Arkright	918	21								1
Busti	2,192	23								
Carroll	1,684	19								3
Charlotte	1,406	25								3
Chautauqua	3,590	68		3			3			3
Cherry Creek	1,745	22		1						1
Clymer	1,229	3								1
Dunkirk	454									
Ellery	1,628	31								2
Ellicott	3,118	16		2					2	1
Ellington	1,330	17		1						1
Fredonia	4,127	78		3				1	2	9
French Creek	1,014	1							1	
Gerry	1,198	19						1		2
Hanover	4,778	76							2	6
Harmony	2,988	45							1	5
Kiantone	491	2								1
Mina	1,038	10		1						
Poland	1,613	28								2
Pomfret	2,186	29								
Portland	2,690	35	1					2	1	
Ripley	2,256	24	1	1						4
Sheridan	1,633	21								
Sherman	1,560	15							1	
Stockton	1,852	32								1
Villenova	1,206	14								1

Record of each reporting local board of health, etc.—(Continued)

NAME OF PLACE	Population	All deaths	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping cough	Diphtheria	Diarrhœa	Consumption
Chautauqua county—(*Continued*)											
Westfield	1,452	17	.....	.....	.....	.....	.....	.....	1	.....	1
Westfield	2,430	28	1	.....	.....	.....	.....	.....	1	1	1
Chemung county	54,063	799	6	18	.....	8	.....	8	8	18	79
ELMIRA	35,672	534	2	12	.....	2	.....	7	7	15	66
Ashland	954	23	.....	.....	.....	.....	.....	.....	.....	.....	1
Baldwin	664	15	.....	.....	.....	.....	.....	.....	.....	.....	1
Big Flats	1,705	21	.....	.....	.....	.....	.....	.....	1	.....	1
Catlin	1,109	5	.....	.....	.....	.....	.....	.....	.....	.....	.....
Chemung	1,500	26	.....	2	.....	.....	.....	.....	.....	.....	1
Elmira	1,260	22	1	.....	.....	.....	.....	1	.....	1	2
Erin	996	19	1	1	.....	.....	.....	.....	.....	.....	1
Horseheads	4,944	52	1	1	.....	.....	.....	.....	.....	2	3
Southport	2,201	38	1	1	.....	1	.....	.....	.....	.....	1
Van Etten	1,406	26	.....	.....	.....	.....	.....	.....	.....	.....	2
Veteran	1,652	18	.....	1	.....	.....	.....	.....	.....	.....	.....
Chenango county	36,568	541	.....	6	.....	1	.....	1	8	9	24
Afton	1,920	28	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bainbridge	1,991	33	.....	.....	.....	.....	.....	.....	.....	1	2
Columbus	997	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Coventry	987	28	.....	.....	.....	.....	.....	.....	.....	2	2
German	423	8	.....	.....	.....	.....	.....	.....	.....	.....	.....
Greene	3,152	63	.....	1	.....	1	.....	.....	1	.....	5
Guilford	2,208	24	.....	.....	.....	.....	.....	.....	.....	1	.....
Lincklaen	646	11	.....	.....	.....	.....	.....	.....	.....	.....	1
McDonough	907	19	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Berlin	2,525	38	.....	.....	.....	.....	.....	.....	.....	.....	2

North Norwich	801	4								
Norwich	1,238	11								
Norwich	5,766	99		2				2	4	5
Otselic	1,234	7								
Oxford	3,545	55		1						2
Pharsalia	780	10								
Pitcher	751	8							1	
Plymouth	1,026	6								
Preston	662	8		2						1
Sherburne	2,614	35					1			3
Smithville	1,105	10								1
Smyrna	1,290	35								
Clinton county	47,430	566	5	6	1		11	5	17	34
Altona	2,465	10							1	1
Ausable	2,195	44	1	1			1			4
Beekmantown	2,067	22							1	
Black Brook	1,933	37		1			2			3
Champlain	4,748	49						1	2	3
Chazy	2,796	41							1	3
Clinton	1,574	21	1					1	2	3
Dannemora	3,720	26		1						1
Ellenburgh	3,248	11		1						
Mooers	3,572	36							3	2
Peru	2,372	36								1
Plattsburgh	3,178	33					1	1	1	1
Plattsburgh	8,434	160		2	1		7	2	4	5
Saranac	3,463	28							1	7
Schuyler Falls	1,665	12	3						1	
Columbia county	43,211	788		13		1	7	1	5	25	48
HUDSON	9,528	203		6			4	1	4	12	13
Ancram	1,238	22					2			1	2
Austerlitz	974	10									1
Canaan	1,307	26									1
Chatham	3,537	86							1	5	3
Claverack	4,416	69		1						1	6
Clermont	812	5								1	
Copake	1,277	16		1							1

Record of each reporting local board of health, etc.—(Continued)

NAME OF PLACE	Population	All deaths	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping cough	Diphtheria	Diarrhea	Consumption
Columbia county—*(Continued)*											
Gallatin	823	20	.....	.....	.....	.....	.....	.....	.....	2	1
Germantown	1,686	33	.....	1	.....	.....	.....	.....	.....	.....	1
Ghent	2,698	52	.....	.....	.....	.....	.....	.....	.....	.....	2
Greenport	1,191	21	.....	.....	.....	.....	.....	.....	.....	.....	3
Hillsdale	1,390	13	.....	.....	.....	.....	.....	.....	.....	.....	1
Kinderhook	3,333	57	.....	2	.....	.....	.....	.....	.....	1	3
Livingston	1,707	32	.....	.....	.....	.....	.....	.....	.....	.....	1
New Lebanon	1,556	17	.....	.....	.....	.....	.....	.....	.....	.....	1
Stockport	2,719	52	.....	2	.....	.....	1	.....	.....	2	4
Stuyvesant	2,125	39	.....	.....	.....	1	.....	.....	.....	.....	3
Taghkanic	894	15	.....	.....	.....	.....	.....	.....	.....	.....	1
Cortland county	**27,576**	**451**	**1**	**12**	.....	**1**	.....	**2**	**1**	**17**	**26**
Cincinnatus	912	21	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cortlandville	2,868	52	.....	2	.....	.....	.....	.....	1	1	3
CORTLAND	9,014	134	.....	5	.....	1	.....	2	.....	4	11
Cuyler	991	12	.....	.....	.....	.....	.....	.....	.....	1	.....
Freetown	610	14	.....	1	.....	.....	.....	.....	.....	2	1
Harford	753	9	.....	.....	.....	.....	.....	.....	.....	.....	.....
Homer	1,522	12	.....	1	.....	.....	.....	.....	.....	.....	.....
Homer	2,381	51	.....	1	.....	.....	.....	.....	.....	5	4
Lapeer	538	7	.....	.....	.....	.....	.....	.....	.....	.....	.....
Marathon	1,664	39	.....	1	.....	.....	.....	.....	.....	2	3
Preble	857	13	1	.....	.....	.....	.....	.....	.....	.....	.....
Scott	852	16	.....	.....	.....	.....	.....	.....	.....	1	1
Solon	622	12	.....	.....	.....	.....	.....	.....	.....	.....	.....
Taylor	762	13	.....	.....	.....	.....	.....	.....	.....	.....	.....

Truxton	1,217	20								1	2
Virgil	1,326	22								1	
Willett	687	4		1							1
Delaware county	46,413	680	4	18		1		5	4	7	29
Andes	1,927	39								1	1
Bovina	932	11									1
Colchester	3,156	32		2				1			2
Davenport	1,620	27						1		1	
Delhi	3,243	60		1				1		1	3
Deposit	1,747	34		1					2		1
Franklin	2,529	45		2							
Hamden	1,378	28									1
Hancock	5,308	42									
Harpersfield	1,221	18									
Kortright	1,475	10		1				1			
Masonville	1,245	15									
Meredith	1,508	19		1							2
Middletown	3,619	52		2						1	3
Roxbury	2,134	27									1
Sidney	4,023	72		3				1			7
Stamford	1,997	32									1
Tompkins	2,482	38	2	1					1		1
Walton	4,869	79	2	4		1			1	3	5
Dutchess county	81,670	1,844	16	12	7			10	17	47	124
POUGHKEEPSIE	24,029	433	6	6	3			4	7	19	62
Amenia	2,374	35									2
Beekman	1,071	21	1							1	2
Clinton	1,370	29	2								
Dover	1,959	39	1							2	2
East Fishkill	1,970	38	2								
Fishkill	13,016	221	1	4	2			3	8	15	28
Hyde Park	2,806	43	2	1					1		2
La Grange	1,304	21									1
Milan	950	16									
North East	2,047	25								2	1
Pawling	1,921	34								1	4
Pine Plains	1,263	15									

Record of each reporting local board of health, etc.—(Continued)

NAME OF PLACE	Population	All deaths	Cerebro-spinal meningitis	Typhoid fever	Malarial disease	Scarlet fever	Measles	Whooping cough	Diphtheria	Diarrhea	Consumption
Dutchess county—(*Continued*)											
Pleasant Valley	1,483	20	.....	.....	.....	.....	.....	.....	.....	.....	1
Poughkeepsie	5,943	45	.....	1	.....	.....	.....	.....	.....	1	2
Red Hook	3,895	62	.....	.....	.....	.....	.....	2	.....	.....	4
Rhinebeck	3,472	66	.....	.....	.....	.....	.....	.....	.....	.....	4
Stanford	1,624	27	.....	.....	.....	.....	.....	.....	.....	1	.....
Union Vale	945	18	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wappingers	1,692	24	.....	.....	.....	.....	.....	.....	.....	2	.....
Wappingers Falls	3,504	50	1	.....	2	.....	.....	.....	.....	2	6
Washington	3,032	62	.....	.....	.....	.....	.....	1	1	1	3
Erie county	433,686	5,678	30	98	1	32	56	45	99	466	522
BUFFALO	352,387	4,662	29	88	1	32	50	42	89	433	463
Tonawanda	7,421	84	.....	1	.....	.....	.....	.....	3	3	10
Alden	2,396	38	.....	.....	.....	.....	.....	.....	1	1	2
Amherst	4,223	54	.....	2	.....	.....	.....	.....	1	3	8
Aurora	4,015	46	.....	1	.....	.....	.....	.....	.....	1	2
Boston	1,398	16	.....	.....	.....	.....	.....	.....	.....	1	1
Brant	2,005	20	.....	.....	.....	.....	2	.....	.....	1	.....
Cheektowaga	5,156	61	.....	.....	.....	.....	1	1	2	4	7
Clarence	2,948	51	.....	.....	.....	.....	.....	.....	.....	.....	1
Colden	1,260	23	.....	1	.....	.....	.....	.....	.....	.....	.....
Collins	3,753	40	.....	.....	.....	.....	.....	.....	.....	2	2
Concord	4,086	52	.....	.....	.....	.....	.....	.....	.....	2	4
East Hamburgh	2,350	24	.....	.....	.....	.....	.....	.....	.....	.....	1
Eden	2,368	33	.....	.....	.....	.....	.....	.....	1	.....	1
Elma	2,202	19	.....	.....	.....	.....	.....	.....	.....	.....	1
Evans	2,795	49	.....	.....	.....	.....	1	.....	1	.....	1

Grand Island	1,036	8									1
Hamburgh	4,673	87								12	3
Holland	1,434	21							1		
Lancaster	8,757	89	1	4				1		1	7
Marilla	1,441	15									1
Newstead	3,884	47								1	1
North Collins	2,362	29					2			1	1
Sardinia	1,548	28		1							2
Tonawanda	1,205										
Wales	1,220	7									
West Seneca	5,363	75						1		2	2
Essex county	**30,707**	**427**	**2**	**4**				**1**		**10**	**33**
Chesterfield	2,362	53								2	
Crown Point	2,112	30								1	2
Elizabethtown	1,131	9									1
Essex	1,333	23		1							4
Jay	1,744	19									
Keene	1,394	11									
Lewis	1,123	22						1			1
Minerva	1,052										
Moriah	4,447	59								6	8
Newcomb	507	9									1
North Elba	1,986	39	1	1							5
North Hudson	544										
St. Armand	769	5									2
Schroon	1,272	23									1
Ticonderoga	5,048	71									6
Westport	1,727	26		2							
Willsborough	1,522	22	1							1	2
Wilmington	634	6									
Franklin county	**42,853**	**694**	**5**	**9**			**1**	**7**	**12**	**24**	**24**
Altamont	3,045	47		2				2	1	4	1
Bangor	2,221	36						1		1	4
Belmont	2,414	29		1							1
Bombay	2,742	35		1							12
Brandon	938	5								1	
Brighton	706	11									5

Record of each reporting local board of health, etc.—(Continued)

NAME OF PLACE	Population	All deaths	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping cough	Diphtheria	Diarrhea	Consumption
Franklin county—(*Continued*)											
Burke	1,936	21	.....	.....	.....	.....	.....	.....	.....	3	1
Chateaugay	2,723	22	1	.....	.....	.....	1	.....	.....	3	2
Constable	1,266	30	.....	.....	.....	.....	.....	.....	4	.....	4
Dickinson	1,691	52	.....	1	.....	.....	.....	.....	.....	.....	2
Duane	312	2	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fort Covington	2,043	34	.....	.....	.....	.....	.....	.....	1	.....	2
Franklin	1,501	23	1	.....	.....	.....	.....	.....	.....	.....	4
Harrietstown	3,390	103	1	2	.....	.....	.....	.....	1	5	36
Malone	5,935	95	.....	1	.....	.....	.....	4	4	8	4
Malone	4,074	66	.....	.....	.....	.....	.....	.....	.....	6	2
Moira	2,484	39	2	1	.....	.....	.....	.....	.....	.....	2
Santa Clara	580	5	.....	.....	.....	.....	.....	.....	.....	.....	1
Waverly	1,615	27	.....	.....	.....	.....	.....	.....	.....	3	.....
Westville	1,237	12	.....	.....	.....	.....	.....	.....	1	.....	1
Fulton county	42,842	604	5	8	.....	.....	.....	8	2	27	49
GLOVERSVILLE	18,349	234	3	3	.....	.....	.....	3	2	18	21
Bleecker	603	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Broadalbin	1,946	36	1	1	.....	.....	.....	1	.....	.....	3
Caroga	470	18	.....	.....	.....	.....	.....	.....	.....	.....	3
Ephratah	1,566	22	.....	.....	.....	.....	.....	.....	.....	.....	.....
JOHNSTOWN	10,130	140	1	2	.....	.....	.....	2	.....	8	16
Johnstown	2,661	58	.....	.....	.....	.....	.....	1	.....	.....	3
Mayfield	2,136	34	.....	1	.....	.....	.....	.....	.....	1	.....
Northampton	2,226	25	.....	.....	.....	.....	.....	1	.....	.....	.....
Oppenheim	1,258	17	.....	.....	.....	.....	.....	.....	.....	.....	3
Perth	667	10	.....	.....	.....	.....	.....	.....	.....	.....	.....
Stratford	830	9	.....	1	.....	.....	.....	.....	.....	.....	.....

Grand Island	1,036	8	......	......	......	......	......	......	......	......	1
Hamburgh	4,673	87	......	......	......	......	......	......	......	12	8
Holland	1,434	21	......	......	......	......	......	......	1	......	......
Lancaster	8,757	89	1	4	......	......	......	1	......	[illegible]	[illegible]
Marilla	1,441	15	......	......	......	......	......	......	[illegible]	[illegible]	[illegible]
Newstead	3,884	47	......	......	......	......	......	[illegible]	[illegible]	[illegible]	[illegible]
North Collins	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	31,478	530	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Ashland	692	6	......	......	......	......	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Athens	2,891	54	......	......	......	3	......	[illegible]	[illegible]	[illegible]	[illegible]
Cairo	2,176	59	......	......	......	......	......	......	......	......	[illegible]
Catskill	3,082	47	......	......	......	......	......	......	......	......	[illegible]
Catskill	5,484	99	......	9	......	......	......	......	1	2	11
Coxsackie	4,102	68	1	4	......	......	......	1	......	3	9
Durham	1,636	18	......	......	......	......	......	......	......	......	......
Greenville	1,651	21	......	......	......	......	......	......	......	......	......
Halcott	350	7	......	1	......	......	......	......	......	......	......
Hunter	2,788	43	......	......	......	......	......	......	......	......	2
Jewett	1,028	14	......	......	......	......	......	......	1	......	......
Lexington	1,153	16	......	......	......	......	......	......	......	......	1
New Baltimore	2,283	38	......	......	......	......	......	......	......	......	3
Prattsville	775	20	......	......	......	......	......	......	......	......	1
Windham	1,387	20	......	......	......	......	......	......	......	......	3
Hamilton county	4,947	36	1	1	......	......	......	......	......	......	1
Arietta	247	1	......	......	......	......	......	......	......	......	......
Benson	299	4	......	......	......	......	......	......	......	......	......
Hope	463	4	......	......	......	......	......	......	......	......	......
Indian Lake	1,219	6	......	......	......	......	......	......	......	......	......

Record of each reporting local board of health, etc.—(Continued)

NAME OF PLACE	Population	All deaths	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping cough	Diphtheria	Diarrhea	Consumption
Franklin county—(*Continued*)											
Burke	1,936	21	.....	.....	.....	.....	.....	.....	.....	3	1
Chateaugay	2,723	22	1	.....	.....	.....	1	.....	.....	3	2
Constable	1,266	30	.....	.....	.....	.....	.....	.....	4	.....	4
Dickinson	1,691	52	.....	1	.....	.....	.....	.....	.....	.....	2
Duane	312	2	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fort Covington	2,043	34	.....	.....	.....	.....	.....	.....	1	.....	2
Franklin	1,501	23	1	.....	.....	.....	.....	.....	.....	.....	4
Harrietstown	3,390	103	1	2	.....	.....	.....	.....	1	5	36
Malone	5,935	95	.....	1	.....	.....	.....	4	4	8	4
Malone	4,074	66	.....	.....	.....	.....	.....	.....	.....	6	2
Moira	2,484	39	2	1	.....	.....	.....	.....	.....	.....	2
Santa Clara	580	5	.....	.....	.....	.....	.....	.....	.....	.....	1
Waverly	1,615	27	.....	.....	.....	.....	.....	.....	.....	3	.....
Westville	1,237	12	.....	.....	.....	.....	.....	.....	1	.....	1
Fulton county	42,842	604	5	8	.....	.....	.....	8	2	27	49
GLOVERSVILLE	18,349	234	3	3	.....	.....	.....	3	2	18	21
Bleecker	603	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Broadalbin	1,946	36	1	1	.....	.....	.....	1	.....	.....	3
Caroga	470	18	.....	.....	.....	.....	.....	.....	.....	.....	3
Ephratah	1,566	22	.....	.....	.....	.....	.....	.....	.....	.....	.....
JOHNSTOWN	10,130	140	1	2	.....	.....	.....	2	.....	8	16
Johnstown	2,661	58	.....	.....	.....	.....	.....	1	.....	.....	3
Mayfield	2,136	34	.....	1	.....	.....	.....	.....	.....	1	.....
Northampton	2,226	25	.....	.....	.....	.....	.....	1	.....	.....	.....
Oppenheim	1,258	17	.....	.....	.....	.....	.....	.....	.....	.....	3
Perth	667	10	.....	.....	.....	.....	.....	.....	.....	.....	.....
Stratford	830	9	.....	1	.....	.....	.....	.....	.....	.....	.....

Genesee county	34,561	506	.....	4	2	.....	3	.....	6	48
Alabama	1,957	30	.....	1	.....	.....	.....	.....	.....	1
Alexander	1,503	22	.....	.....	.....	.....	.....	.....	2	.....
Batavia	9,180	121	.....	2	1	.....	2	.....	1	1
Batavia	2,250	31	.....	.....	.....	.....	.....	.....	2	1
Bergen	1,669	25	.....	.....	.....	.....	.....	.....	.....	.....
Bethany	1,512	35	.....	.....	.....	.....	.....	.....	.....	.....
Byron	1,330	20	.....	.....	.....	.....	.....	.....	.....	.....
Darien	1,887	40	.....	.....	1	.....	.....	.....	.....	.....
Elba	1,526	18	.....	.....	.....	.....	.....	.....	.....	.....
Le Roy	3,144	43	.....	.....	.....	.....	1	.....	1	.....
Le Roy	1,679	22	.....	.....	.....	.....	.....	.....	.....	.....
Oakfield	1,589	20	.....	.....	.....	.....	.....	.....	.....	.....
Pavilion	1,542	29	.....	.....	.....	.....	.....	.....	.....	.....
Pembroke	2,425	26	.....	.....	.....	.....	.....	.....	.....	.....
Stafford	1,338	24	.....	1	.....	.....	.....	.....	.....	.....
Greene county	31,478	530	1	14	.....	3	.....	3	2	5
Ashland	692	6	.....	.....	.....	.....	.....	.....	.....	.....
Athens	2,891	51	.....	.....	.....	3	.....	2	.....	.....
Cairo	2,176	59	.....	.....	.....	.....	.....	.....	.....	.....
Catskill	3,082	47	.....	.....	.....	.....	.....	.....	.....	.....
Catskill	5,484	99	.....	9	.....	.....	.....	.....	1	2
Coxsackie	4,102	68	1	4	.....	.....	.....	1	.....	3
Durham	1,636	18	.....	.....	.....	.....	.....	.....	.....	.....
Greenville	1,651	21	.....	.....	.....	.....	.....	.....	.....	.....
Halcott	350	7	.....	1	.....	.....	.....	.....	.....	.....
Hunter	2,788	43	.....	.....	.....	.....	.....	.....	.....	.....
Jewett	1,028	14	.....	.....	.....	.....	.....	.....	1	.....
Lexington	1,153	16	.....	.....	.....	.....	.....	.....	.....	.....
New Baltimore	2,283	38	.....	.....	.....	.....	.....	.....	.....	.....
Prattsville	775	20	.....	.....	.....	.....	.....	.....	.....	.....
Windham	1,387	20	.....	.....	.....	.....	.....	.....	.....	.....
Hamilton county	4,947	36	1	1	.....	.....	.....	.....	.....	.....
Arietta	247	1	.....	.....	.....	.....	.....	.....	.....	.....
Benson	299	4	.....	.....	.....	.....	.....	.....	.....	.....
Hope	463	4	.....	.....	.....	.....	.....	.....	.....	.....
Indian Lake	1,219	6	.....	.....	.....	.....	.....	.....	.....	.....

Record of each reporting local board of health, etc.—(Continued)

NAME OF PLACE	Population	All deaths	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping cough	Diphtheria	Diarrhea	Consumption
Hamilton county—(*Continued*)											
Lake Pleasant	469	1	.....	1	.....	.....	.....	.....	.....	.....	.....
Long Lake	1,023	11	1	.....	.....	.....	.....	.....	.....	.....	1
Morehouse	319	4	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wells	908	5	.....	.....	.....	.....	.....	.....	.....	.....	.....
Herkimer county	51,049	696	4	12	.....	2	2	7	14	22	42
Columbia	1,268	17	.....	.....	.....	.....	.....	.....	.....	.....	1
Danube	1,043	10	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fairfield	1,390	21	.....	.....	.....	.....	.....	.....	.....	.....	2
Frankfort	4,472	56	.....	.....	.....	.....	.....	.....	1	.....	2
German Flatts	3,525	47	.....	.....	.....	.....	.....	.....	.....	1	3
Ilion	5,138	59	1	2	.....	.....	.....	1	.....	2	5
Herkimer	6,748	81	1	2	.....	1	.....	.....	10	7	5
Litchfield	931	9	.....	.....	.....	.....	.....	.....	.....	.....	1
LITTLE FALLS	10,381	141	1	3	.....	.....	1	3	1	9	13
Little Falls	718	4	.....	.....	.....	.....	.....	.....	.....	.....	1
Manheim	2,648	38	.....	2	.....	.....	.....	1	2	.....	1
Newport	1,613	32	.....	.....	.....	.....	.....	.....	.....	1	2
Norway	680	17	.....	.....	.....	.....	.....	1	.....	.....	2
Ohio	660	9	.....	.....	.....	.....	.....	.....	.....	.....	.....
Russia	2,025	30	.....	1	.....	.....	1	.....	.....	2	1
Salisbury	1,426	25	1	1	.....	.....	.....	.....	.....	.....	1
Schuyler	1,365	13	.....	.....	.....	.....	.....	.....	.....	.....	.....
Stark	1,030	22	.....	1	.....	.....	.....	.....	.....	.....	.....
Warren	1,240	23	.....	.....	.....	1	.....	.....	.....	.....	1
Webb	920	10	.....	.....	.....	.....	.....	.....	.....	.....	1
Wilmurt	353	4	.....	.....	.....	.....	.....	.....	.....	.....	.....
Winfield	1,475	28	.....	.....	.....	.....	.....	1	.....	.....	1

Jefferson county	76,748	1,105	8	88	.....	.....	.....	8	.....	58	89
WATERTOWN	21,696	351	3	18	.....	.....	.....	6	.....	33	37
Adams	3,081	57	.....	.....	.....	.....	.....	.....	.....	.....	4
Alexandria	3,894	60	1	1	.....	.....	.....	1	.....	1	5
Antwerp	3,008	44	.....	.....	.....	.....	.....	.....	.....	2	2
Brownville	3,698	42	.....	1	.....	.....	.....	1	.....	3	.....
Cape Vincent	2,882	27	.....	.....	.....	.....	.....	.....	.....	2	2
Champion	2,525	46	.....	2	.....	.....	.....	.....	.....	1	4
Clayton	4,313	62	1	1	.....	.....	.....	.....	.....	3	7
Ellisburgh	3,888	60	2	.....	.....	.....	.....	.....	.....	4	8
Henderson	1,615	22	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hounsfield	2,772	26	.....	.....	.....	.....	.....	.....	.....	.....	.....
Le Ray	2,576	34	.....	.....	.....	.....	.....	.....	.....	.....	2
Lorraine	1,019	20	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lyme	2,200	21	.....	.....	.....	.....	.....	.....	.....	1	1
Orleans	2,367	30	.....	.....	.....	.....	.....	.....	.....	.....	2
Pamelia	1,031	20	.....	1	.....	.....	.....	.....	.....	.....	1
Philadelphia	1,750	18	.....	.....	.....	.....	.....	.....	.....	.....	2
Rodman	1,212	8	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rutland	1,885	21	.....	.....	.....	.....	.....	.....	.....	.....	2
Theresa	2,130	27	1	.....	.....	.....	.....	.....	.....	.....	2
Watertown	1,159	14	.....	.....	.....	.....	.....	.....	.....	.....	1
Wilna	5,172	83	.....	14	.....	.....	.....	.....	.....	8	4
Worth	875	12	.....	.....	.....	.....	.....	.....	.....	.....	3
Kings county*											
Lewis county	27,427	341	2	5	.....	.....	.....	* 1	5	10	13
Croghan	3,159	19	.....	.....	.....	.....	.....	.....	.....	1	.....
Denmark	2,193	31	.....	.....	.....	.....	.....	.....	.....	.....	.....
Diana	2,083	28	.....	1	.....	.....	.....	.....	1	2	1
Greig	1,100	11	.....	.....	.....	.....	.....	.....	.....	.....	.....
Harrisburgh	770	9	.....	.....	.....	.....	.....	.....	.....	.....	.....
High Market	593	5	.....	.....	.....	.....	.....	.....	.....	.....	1
Lewis	917	15	.....	.....	.....	.....	.....	.....	.....	.....	1
Leyden	1,629	23	.....	1	.....	.....	.....	.....	.....	.....	.....
Lowville	3,746	66	.....	1	.....	.....	.....	1	4	3	4

* See the city of New York.

Record of each reporting local board of health, etc.—(Continued)

NAME OF PLACE	Population	All deaths	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping cough	Diphtheria	Diarrhea	Consumption
Lewis county—(*Continued*)											
Lyonsdale	1,371	21	.....	1	.....	.....	.....	.....	.....	2	3
Martinsburgh	1,845	18	.....	.....	.....	.....	.....	.....	.....	.....	.....
Montague	766	4	1	.....	.....	.....	.....	.....	.....	.....	.....
New Bremen	1,775	15	.....	.....	.....	.....	.....	.....	.....	1	.....
Osceola	629	2	.....	.....	.....	.....	.....	.....	.....	.....	1
Pinckney	934	9	.....	.....	.....	.....	.....	.....	.....	.....	.....
Turin	1,157	20	.....	1	.....	.....	.....	.....	.....	.....	.....
Watson	981	16	1	.....	.....	.....	.....	.....	.....	1	2
West Turin	1,779	29	.....	.....	.....	.....	.....	.....	.....	.....	.....
Livingston county	37,059	470	2	5	.....	2	.....	1	5	7	21
Avon	3,071	35	.....	.....	.....	.....	.....	.....	.....	.....	2
Caledonia	2,072	29	.....	.....	.....	1	.....	.....	.....	1	2
Conesus	1,149	14	.....	1	.....	.....	.....	.....	1	.....	.....
Genesee	3,613	64	.....	.....	.....	.....	.....	.....	.....	3	2
Groveland	1,949	18	.....	.....	.....	.....	.....	.....	.....	.....	1
Leicester	1,415	17	1	1	.....	1	.....	.....	.....	.....	.....
Lima	2,279	32	.....	.....	.....	.....	.....	.....	.....	.....	1
Livonia	2,788	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mt. Morris	3,715	47	.....	.....	.....	.....	.....	1	1	.....	.....
North Dansville	328	5	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dansville	3,633	65	.....	1	.....	.....	.....	.....	.....	.....	6
Nunda	2,397	42	1	.....	.....	.....	.....	.....	1	.....	1
Ossian	780	8	.....	.....	.....	.....	.....	.....	.....	.....	2
Portage	1,029	6	.....	.....	.....	.....	.....	.....	.....	2	.....
Sparta	1,189	6	.....	1	.....	.....	.....	.....	.....	.....	.....
Springwater	2,016	28	.....	.....	.....	.....	.....	.....	.....	1	3

West Sparta	906	17	.....	.....	.....	.....	.....	.....	1	.....	.....
York	2,730	37	.....	1	.....	.....	.....	.....	1	.....	1
Madison county	40,545	602	1	10	.....	2	2	2	1	9	37
Brookfield	2,726	44	.....	1	.....	.....	.....	.....	.....	.....	8
Cazenovia	3,830	57	.....	1	.....	.....	2	.....	.....	2	6
De Ruyter	1,410	23	.....	.....	.....	.....	.....	.....	.....	.....	1
Eaton	2,705	36	.....	.....	.....	.....	.....	.....	.....	.....	4
Fenner	911	14	.....	.....	.....	.....	.....	.....	.....	.....	.....
Georgetown	998	24	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hamilton	3,744	60	1	1	.....	.....	.....	.....	.....	1	1
Lebanon	1,243	20	.....	1	.....	.....	.....	.....	.....	.....	2
Lenox	4,679	73	.....	2	.....	.....	.....	.....	.....	1	3
Lincoln	1,052	19	.....	1	.....	.....	.....	.....	.....	.....	2
Oneida	6,364	90	.....	2	.....	1	.....	2	1	4	8
Oneida	1,174	18	.....	1	.....	.....	.....	.....	.....	.....	.....
Madison	2,024	20	.....	.....	.....	.....	.....	.....	.....	.....	.....
Nelson	1,296	19	.....	.....	.....	.....	.....	.....	.....	.....	1
Smithfield	989	14	.....	.....	.....	.....	.....	.....	.....	.....	.....
Stockbridge	1,622	17	.....	.....	.....	1	.....	.....	.....	.....	1
Sullivan	3,778	54	.....	.....	.....	.....	.....	.....	.....	1	.....
Monroe county	217,854	3,089	14	42	1	19	10	4	54	178	297
ROCHESTER	162,608	2,290	9	32	1	18	10	2	52	145	242
Brighton	3,815	52	1	.....	.....	.....	.....	.....	.....	1	6
Chili	2,099	27	.....	.....	.....	.....	.....	.....	.....	1	2
Clarkson	1,581	31	.....	.....	.....	.....	.....	.....	.....	.....	1
Gates	3,468	23	.....	.....	.....	.....	.....	.....	.....	1	1
Greece	5,579	82	.....	1	.....	.....	.....	1	.....	11	6
Hamlin	2,188	38	1	.....	.....	.....	.....	.....	.....	.....	.....
Henrietta	2,062	27	1	.....	.....	.....	.....	.....	.....	.....	3
Irondequoit	2,863	33	.....	.....	.....	.....	.....	.....	.....	3	2
Mendon	2,760	35	.....	.....	.....	.....	.....	.....	.....	1	2
Ogden	2,616	34	.....	.....	.....	.....	.....	.....	.....	1	1
Parma	2,814	41	.....	1	.....	.....	.....	.....	.....	1	3
Penfield	2,857	45	1	2	.....	.....	.....	.....	.....	1	1
Perinton	4,703	86	.....	3	.....	.....	.....	1	.....	2	5
Pittsford	2,373	30	.....	.....	.....	1	.....	.....	1	.....	.....
Riga	1,864	26	.....	.....	.....	.....	.....	.....	.....	.....	3

Record of each reporting local board of health, etc.—(Continued)

NANE OF PLACE	Population	All deaths	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping cough	Diptheria	Diarrhea	Consumption
Monroe county—(*Continued*)											
Rush	1,491	20	.....	.....	.....	.....	.....	.....	.....	.....	2
Sweden	1,315	21	.....	.....	.....	.....	.....	.....	.....	.....	2
Brockport	3,398	63	.....	2	.....	.....	.....	.....	1	2	8
Webster	3,289	45	1	1	.....	.....	.....	.....	.....	3	1
Wheatland	2,071	40	.....	.....	.....	.....	.....	.....	.....	.....	6
Montgomery county	47,488	673	3	10	.....	1	.....	4	6	23	57
AMSTERDAM	20,929	303	1	4	.....	.....	.....	4	6	17	32
Amsterdam	3,202	39	.....	2	.....	1	.....	.....	.....	1	2
Canajoharie	3,888	57	.....	1	.....	.....	.....	.....	.....	3	5
Charlestown	1,052	14	.....	.....	.....	.....	.....	.....	.....	.....	.....
Florida	1,988	24	1	.....	.....	.....	.....	.....	.....	.....	1
Glen	2,281	29	.....	.....	.....	.....	.....	.....	.....	.....	1
Minden	2,097	28	.....	.....	.....	.....	.....	.....	.....	.....	2
Fort Plain	2,444	52	.....	2	.....	.....	.....	.....	.....	.....	7
Mohawk	2,711	35	.....	1	.....	.....	.....	.....	.....	.....	1
Palatine	2,569	30	.....	.....	.....	.....	.....	.....	.....	.....	2
Root	1,653	19	.....	.....	.....	.....	.....	.....	.....	1	.....
St. Johnsville	2,674	43	1	.....	.....	.....	.....	.....	.....	1	4
Nassau county	55,448	760	1	1	3	4	4	4	8	38	72
Hempstead	27,066	358	1	1	2	4	.....	4	3	41	33
North Hempstead	12,018	175	.....	.....	1	.....	2	.....	3	25	13
Oyster Bay	16,334	227	.....	.....	.....	.....	2	.....	2	22	26
New York, City of	3,437,202	65,347	202	546	165	533	589	514	1,925	3,444	3,046
Borough of Manhattan	1,850,093	36,192	261	278	59	299	334	339	960	1,558	4,327
Borough of Bronx	200,507	3,720	26	15	17	31	47	11	128	159	941

Borough of Brooklyn	1,166,582	21,649	92	205	59	175	197	143	744	1,446	2,436
Borough of Queens	152,999	2,511	9	28	26	27	9	13	70	178	208
Borough of Richmond	67,021	1,275	4	20	4	1	2	8	23	103	134
Niagara county	74,961	1,002	3	34	1	1	3	1	12	53	47
LOCKPORT	16,581	263	.....	3	.....	1	2	.....	2	20	19
NIAGARA FALLS	19,457	267	.....	22	.....	.....	1	1	4	20	10
Cambria	1,880	17	.....	.....	.....	.....	.....	.....	.....	3	.....
Hartland	2,728	48	.....	.....	.....	.....	.....	.....	.....	4	3
Lewiston	3,221	47	.....	1	.....	.....	.....	.....	.....	1	1
Lockport	2,585	16	.....	.....	.....	.....	.....	.....	.....	.....	.....
Newfane	3,248	48	.....	2	.....	.....	.....	.....	.....	.....	.....
Niagara	1,066	5	.....	1	.....	.....	.....	.....	.....	.....	.....
Pendleton	1,364	21	.....	1	.....	.....	.....	.....	.....	1	.....
Porter	2,235	23	1	1	.....	.....	.....	.....	.....	.....	.....
Royalton	4,797	68	1	.....	1	.....	.....	.....	.....	.....	4
Somerset	1,923	30	1	.....	.....	.....	.....	.....	.....	.....	1
Wheatfield	1,926	24	.....	1	.....	.....	.....	.....	.....	.....	1
NORTH TONAWANDA	9,069	98	.....	2	.....	.....	.....	.....	6	4	7
Wilson	2,881	37	.....	.....	.....	.....	.....	.....	.....	.....	1
Oneida county	132,800	2,075	7	20	1	7	.....	10	54	50	185
UTICA	56,383	938	2	9	1	5	.....	3	46	27	106
ROME	15,343	258	4	4	.....	1	.....	2	2	8	25
Annsville	1,744	44	.....	.....	.....	.....	.....	1	.....	1	1
Augusta	2,029	26	.....	.....	.....	.....	.....	.....	.....	.....	1
Ava	706	12	.....	.....	.....	.....	.....	.....	.....	1	1
Boonville	3,332	47	.....	.....	.....	.....	.....	.....	.....	.....	6
Bridgewater	931	16	.....	.....	.....	.....	.....	.....	.....	1	.....
Camden	3,745	72	.....	2	.....	.....	.....	4	1	1	4
Deerfield	1,756	19	.....	.....	.....	.....	.....	.....	.....	.....	.....
Florence	1,207	19	.....	.....	.....	.....	.....	.....	.....	1	2
Floyd	785	11	.....	.....	.....	.....	.....	.....	.....	.....	.....
Forestport	1,562	28	.....	.....	.....	.....	.....	.....	.....	.....	1
Kirkland	4,545	57	.....	2	.....	.....	.....	.....	1	2	5
Lee	1,571	37	.....	.....	.....	.....	.....	.....	1	.....	3
Marcy	1,398	17	.....	.....	.....	.....	.....	.....	.....	.....	.....
Marshall	1,566	32	.....	.....	.....	.....	.....	.....	.....	1	3
New Hartford	5,230	51	1	.....	.....	.....	.....	.....	.....	.....	3

Record of each reporting local board of health, etc.—(Continued)

NAME OF PLACE	Population	All deaths	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping cough	Diphtheria	Diarrhea	Consumption
Oneida county—(*Continued*)											
Paris	2,626	42	.....	.....	.....	.....	.....	.....	1	1	2
Remsen	1,208	23	.....	.....	.....	.....	.....	.....	.....	1	.....
Sangerfield	1,107	34	.....	1	.....	.....	.....	.....	.....	.....	2
Steuben	902	13	.....	.....	.....	.....	.....	.....	.....	.....	1
Trenton	2,628	36	.....	.....	.....	.....	.....	.....	1	1	4
Vernon	2,784	43	.....	.....	.....	.....	.....	.....	.....	1	1
Verona	3,875	44	.....	1	.....	.....	.....	.....	.....	.....	2
Vienna	2,218	29	.....	.....	.....	.....	.....	.....	.....	.....	3
Waterville	1,571	6	.....	.....	.....	.....	.....	.....	.....	.....	2
Western	1,621	31	.....	.....	.....	.....	.....	.....	.....	.....	1
Westmoreland	2,192	28	.....	1	.....	.....	.....	.....	.....	.....	1
Whitestown	6,235	62	.....	.....	.....	1	.....	.....	1	3	5
Onondaga county	168,735	2,875	8	41	1	7	.....	7	27	89	200
SYRACUSE	108,374	1,475	6	26	1	7	.....	7	22	75	153
Camillus	2,453	36	.....	.....	.....	.....	.....	.....	.....	2	2
Cicero	2,611	37	.....	2	.....	.....	.....	.....	.....	.....	1
Clay	2,578	32	1	.....	.....	.....	.....	.....	.....	1	2
Dewitt	5,435	56	.....	2	.....	.....	.....	.....	1	3	2
Elbridge	3,327	58	.....	.....	.....	.....	.....	.....	.....	1	2
Fabius	1,686	39	.....	.....	.....	.....	.....	.....	.....	1	6
Geddes	4,387	46	.....	1	.....	.....	.....	.....	2	.....	.....
La Fayette	1,892	22	.....	1	.....	.....	.....	.....	.....	.....	3
Lysander	3,026	47	.....	.....	.....	.....	.....	.....	.....	.....	3
Baldwinsville	2,992	34	.....	.....	.....	.....	.....	.....	.....	1	4
Manlius	5,374	86	.....	2	.....	.....	.....	.....	.....	.....	3
Marcellus	2,581	28	.....	.....	.....	.....	.....	.....	.....	1	1

Onondaga	5,580	131	1	5	.....	.....	.....	.....	.....	2	9
Otisco	1,202	18	.....	.....	.....	.....	.....	.....	.....	.....	1
Pompey	2,546	43	.....	.....	.....	.....	.....	.....	.....	.....	1
Salina	3,745	63	.....	1	.....	.....	.....	.....	2	2	.....
Skaneateles	4,205	49	.....	.....	.....	.....	.....	.....	.....	.....	2
Spafford	1,159	16	.....	.....	.....	.....	.....	.....	.....	.....	1
Tully	1,465	27	.....	.....	.....	.....	.....	.....	.....	.....	.....
Van Buren	2,117	32	.....	1	.....	.....	.....	.....	.....	.....	4
Ontario county	**49,605**	**693**	**1**	**7**	.....	**3**	.....	.....	**8**	**23**	**48**
Bristol	1,310	21	.....	.....	.....	.....	.....	.....	.....	1	3
Canadice	674	12	.....	.....	.....	.....	.....	.....	.....	.....	.....
Canandaigua	2,133	12	.....	.....	.....	.....	.....	.....	.....	1	.....
Canandaigua	6,151	60	.....	.....	.....	.....	.....	.....	.....	2	1
East Bloomfield	1,940	22	.....	.....	.....	.....	.....	.....	.....	.....	1
Farmington	1,607	18	.....	.....	.....	.....	.....	.....	.....	.....	1
Geneva	1,091	7	.....	.....	.....	.....	.....	.....	.....	.....	.....
GENEVA	10,433	162	1	5	.....	3	.....	.....	5	6	14
Gorham	2,131	31	.....	.....	.....	.....	.....	.....	.....	.....	1
Hopewell	1,550	28	.....	.....	.....	.....	.....	.....	.....	.....	1
Manchester	4,733	91	.....	1	.....	.....	.....	.....	1	5	5
Naples	2,370	33	.....	.....	.....	.....	.....	.....	.....	1	4
Phelps	4,788	85	.....	.....	.....	.....	.....	.....	1	6	10
Richmond	1,381	13	.....	.....	.....	.....	.....	.....	.....	.....	.....
Seneca	2,654	29	.....	1	.....	.....	.....	.....	1	.....	.....
South Bristol	1,104	9	.....	.....	.....	.....	.....	.....	.....	.....	.....
Victor	2,249	33	.....	.....	.....	.....	.....	.....	.....	1	7
West Bloomfield	1,306	27	.....	.....	.....	.....	.....	.....	.....	.....	.....
Orange county	**103,859**	**1,462**	**11**	**24**	**1**	**2**	**3**	**9**	**27**	**64**	**141**
NEWBURGH	24,943	404	3	12	1	1	2	.....	8	16	62
MIDDLETOWN	14,522	205	1	3	.....	.....	.....	1	4	8	21
Blooming Grove	2,188	37	.....	.....	.....	.....	.....	.....	3	.....	3
Chester	2,186	33	.....	.....	.....	.....	.....	.....	.....	3	2
Cornwall	4,258	77	.....	3	.....	.....	.....	.....	.....	4	2
Crawford	1,778	27	.....	.....	.....	.....	.....	.....	.....	.....	1
Deerpark	1,932	26	.....	.....	.....	.....	.....	.....	.....	.....	2
Port Jervis	9,385	136	.....	1	.....	.....	.....	1	2	7	17
Goshen	4,564	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Record of each reporting local board of health, etc.—(Continued)

NAME OF PLACE	Population	All deaths	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping cough	Diphtheria	Diarrhea	Consumption
Orange county—(*Continued*)											
Greenville	800	16	.....	.....	.....	.....	.....	.....	.....	2	.....
Hamptonburgh	1,072	19	.....	.....	.....	.....	.....	.....	.....	.....	.....
Highlands	4,519	37	.....	.....	.....	.....	.....	.....	.....	1	2
Minisink	1,505	20	.....	.....	.....	.....	.....	.....	.....	.....	1
Monroe	1,784	36	.....	.....	.....	1	.....	.....	1	.....	3
Montgomery	5,939	102	5	2	.....	.....	.....	4	7	11	8
Mount Hope	1,236	23	.....	.....	.....	.....	.....	.....	.....	.....	2
Newburgh	4,246	36	.....	1	.....	.....	.....	.....	1	.....	1
New Windsor	2,392	25	1	.....	.....	.....	.....	.....	.....	.....	1
Tuxedo	2,277	30	.....	.....	.....	.....	.....	1	1	6	1
Wallkill	2,725	26	.....	.....	.....	.....	.....	1	.....	.....	3
Warwick	6,403	83	.....	1	.....	.....	1	1	.....	5	4
Wawayanda	1,539	27	.....	.....	.....	.....	.....	.....	.....	1	.....
Woodbury	1,666	37	1	1	.....	.....	.....	.....	.....	.....	5
Orleans county	30,164	446	1	8	.....	1	.....	.....	.....	8	27
Albion	4,447	62	.....	.....	.....	1	.....	.....	.....	1	6
Albion	1,398	29	.....	.....	.....	.....	.....	.....	.....	.....	1
Barre	1,937	35	.....	.....	.....	.....	.....	.....	.....	3	2
Carlton	2,338	23	.....	.....	.....	.....	.....	.....	.....	1	.....
Clarendon	1,518	16	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gaines	1,763	30	.....	.....	.....	.....	.....	.....	.....	.....	1
Kendall	1,616	22	1	.....	.....	.....	.....	.....	.....	.....	4
Murray	3,656	60	.....	.....	.....	.....	.....	.....	.....	1	1
Ridgeway	2,753	40	.....	2	.....	.....	.....	.....	.....	1	1
Medina	4,716	74	.....	1	.....	.....	.....	.....	.....	1	9

Shelby	2,108	32									2
Yates	1,884	23									
Oswego county	70,881	1,105	5	12	1	1		7	18	44	81
OSWEGO	22,199	371	2	5	1				17	27	32
Albion	1,724	24									1
Amboy	824	16		1						1	
Boylston	849	16									1
Constantia	2,259	33	1			1				2	2
Granby	5,120	85	2	1				2		3	2
Hannibal	2,473	40								2	2
Hastings	2,303	37									3
Mexico	3,091	70						1			8
New Haven	1,408	28								1	2
Orwell	1,149	20									
Oswego	2,737	42								1	
Palermo	1,407	27								1	2
Parish	1,530	13									2
Redfield	911	5									
Richland	3,535	39								1	2
Sandy Creek	2,232	32						1			1
Schroeppel	3,012	43		1							4
Scriba	2,480	31								1	6
Volney	2,393	28									1
Fulton	5,281	81		2				3		4	9
West Monroe	936	12		1							1
Williamstown	1,028	12		1					1		
Otsego county	48,939	827	1	17	1	1		8	1	13	35
Burlington	1,263	20		1						1	
Butternuts	1,698	26	1	2						1	
Cherry Valley	1,802	16									1
Decatur	559	8									2
Edmeston	1,767	26									1
Exeter	1,087	13									4
Hartwick	1,800	39								1	1
Laurens	1,483	28		1					1		
Maryland	1,998	33									1
Middlefield	2,058	35		1						1	2

Record of each reporting local board of health, etc.—(Continued)

NAME OF PLACE	Population	All deaths	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping cough	Diphtheria	Diarrhœa	Consumption
Otsego county—(*Continued*)											
Milford	2,007	35	.....	2	1	.....	.....	.....	.....	1	.....
Morris	1,689	34	.....	1	.....	.....	.....	.....	.....	.....	1
New Lisbon	1,225	9	.....	.....	.....	.....	.....	.....	.....	.....	.....
Oneonta	1,763	29	.....	.....	.....	.....	.....	.....	.....	.....	1
Oneonta	7,147	123	.....	2	.....	.....	.....	2	.....	4	7
Otego	1,817	42	.....	.....	.....	.....	.....	.....	.....	.....	1
Otsego	1,171	39	.....	.....	.....	.....	.....	.....	.....	1	4
Cooperstown	2,368	41	.....	1	.....	.....	.....	.....	.....	1	2
Pittsfield	1,101	15	.....	.....	.....	.....	.....	.....	.....	.....	.....
Plainfield	897	10	.....	1	.....	.....	.....	.....	.....	.....	1
Richfield	2,526	48	.....	2	.....	.....	.....	.....	.....	.....	2
Roseboom	1,031	13	.....	.....	.....	.....	.....	.....	.....	.....	.....
Springfield	1,762	25	.....	.....	.....	.....	.....	.....	.....	.....	.....
Unadilla	2,601	61	.....	1	.....	.....	.....	.....	.....	.....	2
Westford	910	14	.....	.....	.....	.....	.....	.....	.....	.....	.....
Worcester	2,409	45	.....	2	.....	.....	.....	1	.....	2	2
Putnam county	13,787	218	2	2	.....	.....	.....	.....	2	3	18
Carmel	2,598	42	.....	.....	.....	.....	.....	.....	.....	.....	5
Kent	1,026	25	.....	2	.....	.....	.....	.....	.....	.....	.....
Patterson	1,644	18	.....	.....	.....	.....	.....	.....	.....	1	1
Phillipstown	4,642	72	.....	.....	.....	.....	.....	.....	2	.....	9
Putnam Valley	1,034	18	.....	.....	.....	.....	.....	.....	.....	1	.....
South East	2,843	43	2	.....	.....	.....	.....	.....	.....	1	3
Rensselaer county	121,607	2,292	16	83	.....	1	20	8	45	138	265
TROY	60,651	1,279	11	48	.....	.....	20	2	22	105	194
Berlin	1,677	29	1	1	.....	.....	.....	.....	.....	1	1

Brunswick	3,513	40	.....	1	.....	.....	.....	.....	1	.....	1
East Greenbush*	2,036	46	.....	1	.....	.....	.....	.....	.....	.....	1
Grafton	1,136	28	.....	.....	.....	.....	.....	.....	.....	2	.....
RENSSELAER	7,466	130	1	8	.....	.....	.....	.....	2	6	10
Hoosick	2,960	30	.....	.....	.....	.....	.....	.....	.....	.....	3
Hoosick Falls	5,671	70	.....	.....	.....	.....	.....	3	2	4	13
Lansingburg	344	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lansingburg	12,595	227	2	11	.....	.....	.....	1	17	11	20
Nassau	2,073	38	.....	2	.....	.....	.....	.....	.....	2	2
North Greenbush	4,719	92	1	1	.....	.....	.....	.....	1	3	6
Petersburgh	1,449	27	.....	1	.....	.....	.....	.....	.....	1	2
Pittstown	3,236	51	.....	2	.....	.....	.....	1	.....	.....	3
Poestenkill	1,362	30	.....	1	.....	.....	.....	.....	.....	.....	2
Sand Lake	2,299	47	.....	1	.....	1	.....	.....	.....	.....	.....
Schaghticoke	2,631	33	.....	1	.....	.....	.....	.....	.....	2	3
Schodack	4,334	77	.....	3	.....	.....	.....	1	.....	1	4
Stephentown	1,545	20	.....	1	.....	.....	.....	.....	.....	.....	.....
Richmond county*											
Rockland county	38,298	521	5	6	2	2	5	4	13	32	41
Clarkstown	6,305	85	1	.....	.....	.....	.....	.....	.....	1	6
Haverstraw	9,874	89	1	2	2	.....	1	1	.....	15	5
Orangetown	6,181	95	2	1	.....	.....	.....	.....	2	1	3
Nyack	4,275	64	.....	1	.....	.....	1	1	.....	6	2
Ramapo	7,502	125	.....	1	.....	.....	3	1	10	7	21
Stony Point	4,161	63	1	1	.....	2	.....	1	1	2	4
St. Lawrence county	89,088	1,302	8	31	1	7	1	10	12	44	89
OGDENSBURGH	12,633	227	3	11	.....	5	.....	2	.....	17	23
Brasher	2,703	44	.....	1	.....	.....	.....	.....	.....	1	4
Canton	6,387	107	2	1	.....	.....	.....	1	1	1	15
Clare	330	7	.....	.....	.....	.....	.....	.....	.....	.....	.....
Clifton	1,382	12	.....	.....	.....	.....	.....	.....	2	1	1
Colton	1,678	34	.....	2	.....	.....	.....	2	.....	2	3
De Kalb	2,723	45	.....	1	.....	.....	.....	.....	1	3	3
De Peyster	936	8	.....	.....	.....	.....	.....	.....	.....	.....	.....
Edwards	1,340	20	.....	.....	.....	.....	.....	.....	1	.....	.....

*See the City of New York

Record of each reporting local board of health, etc.—(Continued)

NAME OF PLACE	Population	All deaths	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping cough	Diphtheria	Diarrhea	Consumption
St. Lawrence county—(*Continued*)											
Fine	1,694	28	.....	.....	.....	.....	.....	1	1	1	1
Fowler	1,716	35	1	1	.....	.....	.....	.....	1	3	1
Gouverneur	5,915	83	.....	1	1	.....	.....	1	2	5	5
Hammond	1,764	22	.....	1	.....	.....	.....	.....	.....	.....	.....
Hermon	1,542	34	.....	.....	.....	.....	.....	.....	.....	1	1
Hopkinton	2,521	25	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lawrence	1,963	24	.....	.....	.....	.....	.....	.....	.....	.....	1
Lisbon	5,255	42	.....	1	.....	.....	.....	.....	.....	1	3
Louisville	1,621	8	.....	.....	.....	.....	.....	.....	.....	.....	2
Macomb	1,374	13	.....	1	.....	.....	.....	.....	.....	.....	.....
Madrid	1,668	37	.....	1	.....	1	.....	.....	.....	1	.....
Massena	3,904	42	1	.....	.....	.....	.....	1	.....	3	3
Morristown	1,798	21	.....	1	.....	.....	.....	.....	.....	.....	.....
Norfolk	1,911	28	.....	2	.....	.....	.....	.....	.....	1	4
Oswegatchie	2,368	26	.....	.....	.....	.....	.....	.....	.....	.....	3
Parishville	2,086	37	.....	3	.....	.....	.....	1	.....	.....	1
Pierrepont	1,885	29	.....	.....	.....	.....	.....	.....	.....	.....	3
Pitcairn	902	9	.....	.....	.....	.....	.....	.....	1	.....	.....
Potsdam	5,211	59	1	1	.....	.....	.....	1	.....	.....	1
Potsdam	3,843	73	.....	2	.....	.....	1	.....	2	2	3
Rossie	1,136	12	.....	.....	.....	.....	.....	.....	.....	.....	2
Russell	2,067	46	.....	.....	.....	.....	.....	.....	.....	1	2
Stockholm	2,826	44	.....	.....	.....	.....	.....	.....	.....	.....	3
Waddington	2,001	21	.....	.....	.....	1	.....	.....	.....	.....	1
Saratoga county	61,089	1,040	7	28	1	1	.....	6	14	45	73
Ballston Spa	3,923	51	.....	2	.....	.....	.....	.....	.....	4	4
Ballston	1,501	19	.....	.....	.....	.....	.....	.....	.....	.....	2

Charlton	1,109	12								
Clifton Park	2,140	29							2	
Corinth	3,104	32		1					1	2
Day	719	11								
Edinburgh	1,032	14								
Galway	1,350	18								1
Greenfield	1,837	30		1						1
Hadley	914	13								1
Halfmoon	1,906	32		1				1	2	1
Malta	1,322	16								1
Mechanicville	4,695	75	1	2	1			2	5	7
Milton	2,536	64		1						6
Moreau	2,999	60		2				1	2	1
Northumberland	1,227	14		1					1	
Providence	607	9								
Saratoga	3,999	62		1			2	3	5	4
Saratoga Springs	1,125	14		1						1
Saratoga Springs	12,409	264	5	3			3	1	14	22
Stillwater	3,489	66	1						1	8
Waterford	6,157	120		6		1	1	6	8	11
Wilton	989	15		1						
Schenectady county	**46,852**	**631**	**2**	**3**			**10**	**15**	**32**	**42**
SCHENECTADY	31,682	451	2	1			9	15	29	30
Duanesburgh	2,428	32								
Glenville	3,010	34								1
Niskayuna	1,327	24		1						6
Princetown	694	10								
Rotterdam	7,711	80		1			1		3	5
Schoharie county	**26,854**	**450**	**2**	**9**			**8**	**1**	**9**	**31**
Blenheim	768	10		1						
Broome	1,153	19								2
Carlisle	1,225	14								1
Cobleskill	3,973	63	2	1			1		1	8
Conesville	793	13								1
Esperance	1,096	17								1
Fulton	1,998	24		1						2
Gilboa	1,448	27								3

Record of each reporting local board of health, etc.—(Continued)

NAME OF PLACE	Population	All deaths	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping cough	Diphtheria	Diarrhea	Consumption
Schoharie county—(*Continued*)											
Jefferson	1,409	22	.....	.....	.....	.....	.....	.....	.....	1	1
Middleburgh	2,738	65	.....	3	.....	.....	.....	.....	1	1	5
Richmondville	1,719	13	.....	.....	.....	.....	.....	.....	.....	.....	.....
Schoharie	2,700	50	.....	.....	.....	.....	.....	1	.....	.....	4
Seward	1,404	26	.....	.....	.....	.....	.....	.....	.....	3	1
Sharon	2,058	33	.....	.....	.....	.....	.....	.....	.....	.....	.....
Summit	1,217	35	.....	2	.....	.....	.....	1	.....	3	2
Wright	1,155	19	.....	1	.....	.....	.....	.....	.....	.....	.....
Schuyler county	15,811	232	1	1	.....	2	.....	.....	2	5	7
Catherine	1,386	25	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cayuta	459	4	1	.....	.....	.....	.....	.....	1	.....	.....
Dix	3,894	52	.....	.....	.....	.....	.....	.....	.....	1	.....
Hector	4,137	59	.....	1	.....	2	.....	.....	.....	4	3
Montour	1,623	20	.....	.....	.....	.....	.....	.....	.....	.....	1
Orange	1,391	32	.....	.....	.....	.....	.....	.....	.....	.....	2
Reading	1,335	16	.....	.....	.....	.....	.....	.....	1	.....	.....
Tyrone	1,586	24	.....	.....	.....	.....	.....	.....	.....	.....	1
Seneca county	28,114	385	1	.....	1	5	.....	.....	1	9	42
Covert	1,897	37	.....	.....	.....	.....	.....	.....	.....	1	2
Fayette	2,056	47	.....	.....	.....	.....	.....	.....	.....	.....	6
Junius	1,053	9	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lodi	1,636	19	.....	.....	.....	.....	.....	.....	.....	.....	1
Ovid	3,734	33	.....	.....	.....	.....	.....	.....	.....	1	5
Romulus	2,895	23	.....	.....	.....	.....	.....	.....	.....	2	2
Seneca Falls	786	4	.....	.....	.....	.....	.....	.....	.....	.....	1

Seneca Falls	6,519	90	.....	.....	1	1	.....	.....	.....	2	15
Tyre	954	10	.....	.....	.....	.....	.....	.....	.....	.....	1
Varick	1,270	17	.....	.....	.....	.....	.....	.....	.....	.....	2
Waterloo	1,058	15	.....	.....	.....	2	.....	.....	.....	.....	2
Waterloo	4,256	81	1	.....	.....	2	.....	.....	1	3	5
Steuben county	82,822	1,045	5	26	1	7	2	3	14	23	62
CORNING	11,061	150	1	3	.....	3	1	.....	6	5	19
HORNELLSVILLE	11,918	164	1	9	.....	3	.....	1	2	7	12
Addison	2,637	33	.....	.....	.....	.....	.....	.....	.....	.....	.....
Avoca	2,125	36	.....	.....	.....	.....	.....	.....	1	.....	4
Bath	3,443	70	.....	2	.....	.....	.....	.....	.....	1	3
Bath	4,994	52	.....	1	1	1	.....	.....	.....	1	2
Bradford	771	15	.....	.....	.....	.....	.....	.....	.....	.....	2
Cameron	1,353	8	.....	.....	.....	.....	.....	.....	.....	.....	.....
Campbell	1,467	22	.....	.....	.....	.....	.....	.....	.....	1	.....
Canisteo	3,432	43	1	.....	.....	.....	.....	1	1	1	1
Caton	1,345	14	.....	1	.....	.....	.....	.....	.....	.....	.....
Cohocton	3,197	42	.....	1	.....	.....	.....	.....	1	1	1
Corning	1,937	26	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dansville	1,417	12	.....	.....	.....	.....	.....	.....	.....	1	.....
Erwin	1,851	18	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fremont	1,033	18	.....	1	.....	.....	.....	.....	.....	1	.....
Greenwood	1,129	10	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hartsville	787	7	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hornby	959	11	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hornellsville	1,833	27	.....	1	.....	.....	.....	.....	1	1	3
Howard	1,704	14	2	1	.....	.....	.....	.....	.....	1	1
Jasper	1,430	18	.....	.....	.....	.....	.....	.....	.....	1	2
Lindley	1,306	14	.....	1	.....	.....	.....	.....	1	.....	.....
Prattsburgh	2,197	25	.....	2	.....	.....	.....	.....	.....	.....	1
Pulteney	1,590	33	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rathbone	1,059	12	.....	.....	.....	.....	.....	.....	.....	.....	.....
Thurston	1,017	14	.....	.....	.....	.....	.....	.....	.....	.....	4
Troupsburgh	2,015	29	.....	2	.....	.....	.....	.....	.....	.....	4
Tuscarora	1,301	9	.....	.....	.....	.....	.....	.....	.....	.....	.....
Urbana	2,692	33	.....	1	.....	.....	.....	.....	.....	.....	2
Wayland	2,984	25	.....	.....	.....	.....	.....	1	.....	.....	1
Wayne	838	14	.....	.....	.....	.....	.....	.....	.....	.....	.....

Record of each reporting local board of health, etc.—(Continued)

NAME OF PLACE	Population	All deaths	Cerebro spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping cough	Diphtheria	Diarrhea	Consumption
Steuben county—(*Continued*)											
West Union	1,025	2	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wheeler	1,188	4	.....	.....	.....	.....	.....	.....	.....	.....	.....
Woodhull	1,787	21	.....	.....	.....	.....	.....	.....	1	1	.....
Suffolk county	**77,582**	**1,382**	.....	**17**	**2**	**2**	.....	**7**	**6**	**98**	**138**
Babylon	7,112	153	.....	.....	.....	.....	.....	.....	2	5	13
Brookhaven	14,592	249	.....	2	.....	2	.....	4	.....	16	29
East Hampton	2,724	37	.....	1	.....	.....	.....	.....	.....	4	2
Huntington	9,483	162	.....	3	.....	.....	.....	.....	1	14	11
Islip	12,545	186	.....	5	.....	.....	.....	2	1	8	12
Riverhead	4,503	64	.....	.....	.....	.....	.....	.....	.....	2	1
Shelter Island	1,066	14	.....	.....	.....	.....	.....	.....	.....	.....	1
Smithtown	5,863	236	.....	4	.....	.....	.....	.....	1	18	48
South Hampton	9,424	104	.....	.....	.....	.....	.....	1	1	5	5
Sag Harbor	1,969	81	.....	.....	1	.....	.....	.....	.....	20	6
Southold	8,301	96	.....	2	1	.....	.....	.....	.....	6	10
Sullivan county	**32,306**	**518**	**1**	**7**	.....	.....	**2**	**7**	**3**	**15**	**61**
Bethel	2,248	25	.....	.....	.....	.....	.....	.....	.....	.....	.....
Callicoon	2,054	30	.....	.....	.....	.....	.....	.....	.....	.....	3
Cochecton	1,117	9	.....	.....	.....	.....	.....	.....	.....	.....	.....
Delaware	1,541	31	.....	.....	.....	.....	.....	.....	.....	3	3
Fallsburgh	2,974	48	.....	1	.....	.....	.....	.....	.....	2	2
Forestburgh	625	2	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fremont	2,184	17	.....	.....	.....	.....	.....	1	.....	.....	.....
Highland	964	11	1	.....	.....	.....	.....	3	.....	.....	.....
Liberty	4,568	118	.....	3	.....	.....	2	.....	2	5	40

Lumberland	809	9								
Mamakating	3,128	61					1		4	2
Neversink	2,039	28		3						2
Rockland	3,426	35					1		1	1
Thompson	3,739	71								8
Tusten	890	18					1	1		
Tioga county	**27,951**	**419**		**5**	**1**		**3**	**2**	**8**	**30**
Waverly	4,465	59		2	1		1		2	8
Barton	1,916	28								1
Berkshire	1,011	7								
Candor	3,330	48							1	5
Newark Valley	2,164	39					1	2	1	2
Nichols	1,564	30								3
Owego	3,339	69		1					1	1
Owego	5,039	76		1					3	4
Richford	1,142	13								2
Spencer	1,868	21								2
Tioga	2,113	29		1			1			2
Tompkins county	**33,830**	**486**	**3**	**4**	**1**	**1**	**1**	**2**	**10**	**44**
ITHACA	13,136	171	2	1	1				4	27
Caroline	1,938	34								2
Danby	1,449	20								2
Dryden	3,785	54	1						1	1
Enfield	1,214	15								
Groton	3,564	55		2						3
Ithaca	1,516	14								2
Lansing	2,550	42								3
Newfield	1,902	32					1		3	2
Ulysses	2,776	49		1	1			2	2	2
Ulster county	**88,422**	**1,372**	**8**	**22**	**7**	**6**	**4**	**13**	**55**	**117**
KINGSTON	24,535	430	5	7	4		1	5	22	49
Denning	783	5								
Esopus	4,907	77		1			1	4	5	6
Gardiner	1,509	23							1	
Hardenburgh	722	4								
Hurley	1,903	43		1					3	7
Kingston	524	11								1

Record of each reporting local board of health, etc.—(Continued)

NAME OF PLACE	Population	All deaths	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping cough	Diptheria	Diarrhea	Consumption
Ulster county—(*Continued*)											
Lloyd	2,608	48	.....	1	.....	.....	.....	.....	.....	.....	.....
Marbletown	3,511	49	.....	.....	1	.....	.....	1	.....	.....	3
Marlborough	3,978	49	.....	.....	.....	.....	.....	.....	.....	2	5
New Paltz	2,264	52	.....	1	.....	.....	.....	.....	1	.....	4
Olive	2,465	33	.....	.....	1	.....	.....	.....	.....	.....	2
Plattekill	1,866	37	.....	2	.....	.....	.....	.....	.....	3	3
Rochester	2,874	35	.....	.....	.....	1	.....	.....	.....	.....	.....
Rosendale	6,278	118	2	5	1	2	.....	.....	.....	8	4
Saugerties	6,057	97	.....	1	.....	2	.....	.....	.....	4	9
Saugerties	3,697	64	1	1	.....	.....	.....	.....	2	3	8
Shandaken	3,053	46	.....	1	.....	.....	.....	1	.....	3	3
Shawangunk	2,406	36	.....	.....	.....	.....	.....	.....	.....	.....	4
Ulster	3,582	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wawarsing	4,346	56	.....	.....	.....	1	.....	.....	.....	1	6
Ellenville	2,879	39	.....	.....	.....	.....	.....	.....	1	.....	3
Woodstock	1,675	20	.....	1	.....	.....	.....	.....	.....	.....	.....
Warren county	**29,043**	**464**	**2**	**9**	.....	**8**	.....	**4**	**4**	**18**	**31**
Bolton	1,363	22	.....	.....	.....	.....	.....	.....	.....	.....	5
Caldwell	1,465	30	.....	1	.....	.....	.....	.....	.....	.....	3
Chester	2,052	26	.....	1	.....	.....	.....	.....	.....	.....	3
Hague	1,042	5	.....	.....	.....	.....	.....	.....	.....	.....	.....
Horicon	1,136	17	.....	.....	.....	.....	.....	.....	.....	.....	.....
Johnsburgh	2,374	35	.....	2	.....	.....	.....	.....	.....	.....	1
Luzerne	1,341	23	1	1	.....	.....	.....	1	.....	.....	.....
Queensbury	2,377	32	.....	.....	.....	.....	.....	.....	.....	1	.....
Glens Falls	12,613	211	1	3	.....	8	.....	3	3	11	19
Stony Creek	1,019	12	.....	.....	.....	.....	.....	.....	.....	.....	.....

Thurman	809	16	.....	.....	.....	.....	.....	.....	.....	.....
Warrensburgh	2,352	35	.....	1	.....	.....	.....	.....	1	1	.....
Washington county	**45,624**	**650**	**5**	**15**	.....	**1**	**2**	**1**	**7**	**20**	**62**
Argyle	1,995	41	2	1	.....	.....	.....	.....	.....	.....	.....
Cambridge	1,878	29	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dresden	515	5	.....	.....	.....	.....	.....	.....	.....	.....	.....
Easton	2,247	32	1	.....	.....	.....	.....	.....	.....	.....	2
Fort Ann	2,263	39	.....	.....	.....	.....	.....	.....	.....	.....	2
Fort Edward	5,216	95	.....	1	.....	1	.....	.....	4	3	14
Granville	5,217	57	1	.....	.....	.....	.....	.....	.....	1	7
Greenwich	4,172	71	1	5	.....	.....	.....	.....	3	4	10
Hampton	689	17	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hartford	1,290	27	.....	2	.....	.....	.....	.....	.....	.....	1
Hebron	1,679	25	.....	.....	.....	.....	.....	.....	.....	1	5
Jackson	1,059	16	.....	.....	.....	.....	.....	.....	.....	.....	1
Kingsbury	6,100	78	.....	3	.....	.....	1	1	.....	10	6
Putnam	505	6	.....	.....	.....	.....	.....	.....	.....	.....	2
Salem	2,978	44	.....	.....	.....	.....	.....	.....	.....	.....	6
White Creek	2,496	40	.....	1	.....	.....	.....	.....	.....	.....	5
Whitehall	918	7	.....	.....	.....	.....	.....	.....	.....	.....	.....
Whitehall	4,377	21	.....	2	.....	.....	1	.....	.....	1	1
Wayne county	**48,660**	**770**	**8**	**11**	.....	**4**	**2**	.....	.....	**28**	**60**
Newark	4,578	61	.....	2	.....	.....	.....	.....	.....	1	9
Arcadia	2,468	33	.....	.....	.....	.....	.....	.....	.....	4	4
Butler	1,786	23	.....	.....	.....	.....	.....	.....	.....	1	.....
Galen	2,099	25	.....	.....	.....	.....	.....	.....	.....	1	.....
Clyde	2,507	55	.....	2	.....	.....	.....	.....	.....	2	6
Huron	1,667	24	.....	.....	.....	.....	.....	.....	.....	.....	1
Lyons	5,824	118	.....	2	.....	4	2	.....	.....	4	11
Macedon	2,488	28	2	.....	.....	.....	.....	.....	.....	1	3
Marion	2,015	38	.....	2	.....	.....	.....	.....	.....	.....	1
Ontario	2,550	36	.....	.....	.....	.....	.....	.....	.....	3	1
Palmyra	3,758	65	.....	1	.....	.....	.....	.....	.....	3	2
Rose	2,055	45	.....	1	.....	.....	.....	.....	.....	2	3
Savannah	1,733	33	.....	.....	.....	.....	.....	.....	.....	.....	5
Sodus	5,118	57	.....	1	.....	.....	.....	.....	.....	.....	5
Walworth	2,137	34	1	.....	.....	.....	.....	.....	.....	.....	3

Record of each reporting local board of health, etc.—(Continued)

NAME OF PLACE	Population	All deaths	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping cough	Diphtheria	Diarrhœa	Consumption
Wayne county—(*Continued*)											
Williamson	2,670	36	.....	.....	.....	.....	.....	.....	.....	.....	3
Wolcott	3,207	59	.....	.....	.....	.....	.....	.....	.....	1	3
Westchester county	183,375	2,838	18	11	8	9	6	30	52	207	289
YONKERS	47,931	778	7	5	1	4	.....	3	7	80	101
MOUNT VERNON	20,346	268	1	1	.....	.....	2	5	.....	12	26
Bedford	3,497	64	.....	1	.....	.....	.....	.....	.....	2	5
Cortlandt	8,345	136	1	.....	.....	.....	.....	.....	2	5	10
Peekskill	10,358	170	.....	.....	.....	.....	1	3	12	18	28
East Chester	3,040	54	.....	.....	.....	.....	.....	1	1	3	3
Greenburgh	14,894	230	3	1	.....	.....	1	5	9	17	18
Harrison	2,048	36	.....	.....	.....	2	.....	.....	.....	3	1
Lewisboro	1,311	12	.....	.....	.....	.....	.....	.....	.....	.....	1
Mamaroneck	3,849	83	1	.....	1	.....	1	1	1	5	4
Mount Pleasant	8,698	186	1	.....	.....	.....	.....	1	2	9	22
New Castle	2,401	22	.....	.....	.....	.....	.....	.....	.....	1	1
NEW ROCHELLE	14,720	200	1	1	4	1	.....	7	4	11	16
North Castle	1,471	18	.....	.....	.....	.....	.....	.....	.....	1	2
North Salem	1,133	17	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ossining	2,956	21	.....	.....	.....	.....	1	1	.....	.....	.....
Sing Sing	7,939	135	.....	1	2	1	.....	1	5	7	15
Pelham	1,571	15	.....	.....	.....	.....	.....	2	1	.....	1
Poundridge	823	10	.....	.....	.....	.....	.....	.....	.....	.....	.....
Port Chester	7,440	125	2	.....	.....	.....	.....	.....	6	12	16
Rye	5,421	62	.....	1	.....	1	.....	.....	1	3	2
Scarsdale	885	6	.....	.....	.....	.....	.....	.....	.....	.....	.....
Somers	1,338	18	.....	.....	.....	.....	.....	.....	.....	.....	1
White Plains	640	16	1	.....	.....	.....	.....	.....	.....	.....	1

White Plains	7,899	118	.....	.....	.....	.....	.....	.....	1	16	10
Yorktown	2,421	36	.....	.....	.....	.....	.....	.....	.....	2	5
Wyoming county	30,418	481	1	8	.....	.....	5	.....	1	8	26
Arcade	1,877	30	.....	2	.....	.....	.....	.....	.....	.....	.....
Attica	2,677	35	.....	1	.....	.....	1	.....	.....	.....	.....
Bennington	1,904	24	.....	.....	.....	.....	.....	.....	.....	.....	.....
Castile	2,539	36	.....	.....	.....	.....	.....	.....	.....	.....	1
Covington	930	17	.....	.....	.....	.....	.....	.....	.....	1	.....
Eagle	1,114	15	.....	.....	.....	.....	.....	.....	.....	.....	1
Gainesville	2,325	42	.....	1	.....	.....	2	.....	.....	.....	1
Genesee Falls	658	6	.....	.....	.....	.....	.....	.....	.....	.....	1
Java	1,770	24	.....	1	.....	.....	.....	.....	.....	.....	2
Middlebury	1,406	26	.....	.....	.....	.....	.....	.....	.....	.....	2
Orangeville	1,005	30	.....	.....	.....	.....	.....	.....	.....	1	2
Perry	3,862	64	.....	1	.....	.....	....	.....	1	.....	5
Pike	1,277	31	.....	.....	.....	.....	2	.....	.....	.....	2
Sheldon	1,801	27	.....	.....	.....	.....	.....	.....	.....	1	.....
Warsaw	4,341	60	1	....	.....	.....	.....	.....	.....	.....	9
Wethersfield	927	14	.....	2	.....	.....	.....	.....	.....	.....	.....
Yates county	20,818	325	8	8	.....	1	.....	1	1	5	12
Barrington	1,249	20	.....	.....	.....	.....	.....	.....	.....	.....	.....
Benton	1,970	29	.....	1	.....	.....	.....	.....	1	.....	1
Dundee	.....	7	.....	.....	.....	.....	.....	.....	.....	1	.....
Italy	1,094	9	.....	.....	.....	1	.....	.....	.....	.....	1
Jerusalem	2,775	40	.....	.....	.....	.....	.....	.....	.....	.....	2
Middlesex	1,282	12	.....	2	.....	.....	.....	.....	.....	.....	1
Milo	1,877	34	.....	.....	.....	.....	.....	.....	.....	.....	1
Penn Yan	4,650	85	2	.....	.....	.....	.....	.....	.....	1	5
Potter	1,520	23	.....	.....	.....	.....	.....	.....	.....	1	1
Starkey	2,836	41	1	.....	.....	.....	.....	.....	.....	.....	.....
Torrey	1,065	25	.....	.....	.....	.....	.....	1	.....	2	.....
State prisons	.....	16	.....	.....	.....	.....	.....	.....	.....	.....	3
State asylums	.....	760	.....	4	.....	.....	.....	.....	.....	3	69
Other public institutions	.....	292	1	.....	.....	.....	.....	5	4	17	17

MONTHLY BULLETIN OF THE NEW

Abstract of reports of deaths and causes in the following

[Cities are printed in SMALL CAPS, villages

SANITARY DISTRICT	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
MARITIME DISTRICT Totals	3,826,000	6,240	19.10	1,672	27.0	72.00	26	23
CITY OF NEW YORK Totals	3,550,053	5,741	19.00	1,582	27.5	75.00	21	23
BOROUGH OF MANHATTAN	1,953,569	3,220	19.40	923	28.7	80.00	18	11
BOROUGH OF THE BRONX	163,587	342	24.62	76	22.4	56.00	....	3
BOROUGH OF BROOKLYN	1,231,548	1,882	17.75	503	27.0	75.00	2	8
BOROUGH OF QUEENS	134,139	218	19.00	56	25.0	50.00	1	1
BOROUGH OF RICHMOND	67,260	129	22.57	24	18.5	16.50	....	....
Oyster Bay	15,000	28	23.00	3	11.0	110.00	....	....
Hempstead	24,000	24	.....	1	.....	.....	....	....
North Hempstead	8,726	16	22.00	1	6.5	65.00	....	....
Southold	7,671	5	.....	0	.....	.....	....	...
Sag Harbor	3,000	6	24.00	1	16.7	.....	....	....
Huntington	8,253	21	24.00	3	18.0	.....	....	....
Brookhaven	13,500	16	.....	0	.....	.....	....	....
YONKERS	42,000	70	21.00	19	27.0	57.00	4	....
Greenburgh	12,000	16	16.00	3	20.0	75.00	1	....
MOUNT VERNON	15,513	28	21.70	6	21.5	100.00	....	....
Port Chester	7,547	13	22.00	1	7.5	.....	....	....
Sing Sing	9,500	19	22.80	4	20.0	50.00	....	....
NEW ROCHELLE	8,217	27	34.00	6	22.2	85.00	....	....
Peekskill	10,000	18	21.60	2	11.0	110.00	....	....
White Plains	4,042	12	36.00	3	25.0	.....	....	....
Rest of district	90,000	180	23.50	36	20.0	25.00	....	....
HUDSON VALLEY DISTRICT Totals	700,000	1,418	24.00	243	17.0	78.00	6	29
ALBANY	100,000	235	28.00	58	25.0	112.00	....	14
COHOES	25,000	62	31.00	19	30.0	125.00	....	5
TROY	65,000	113	21.00	18	16.0	75.00	....	3
WATERVLIET	14,000	25	21.50	8	35.0	80.00	....	....
Green Island	4,500	6	16.00	0	.....	.....	....	....
Lansingburg	12,000	13	13.00	0	.....	.....	....	....
Hoosic Falls	7,014	13	23.00	3	24.0	80.00	....	....
RENSSELAER	8,000	17	25.00	5	30.0	118.00	1	1
COXSACKIE	3,894	5	16.00	0	.....	.....	....	....
Catskill	5,000	12	35.00	2	16.7	400.00	....	3
HUDSON	9,638	26	32.00	6	23.0	110.00	....	....
KINGSTON	25,000	44	22.00	7	17.5	50.00	....	....
Ellenville	3,000	7	28.00	1	14.2	.....	....	....
Marbletown	3,689	13	.....	0	.....	.....	....	....
Rosendale	6,125	7	14.00	1	14.2	.....	....	....
Esopus	5,035	4	10.00	0	.....	.....	....	....
Saugerties	4,237	3	10.00	0	.....	.....	....	....
POUGHKEEPSIE	25,000	61	30.00	12	20.0	127.00	....	1
Fishkill	12,000	21	21.00	4	19.0	90.00	....	....
Wappinger Falls	3,718	4	13.50	0	.....	.....	....	....
NEWBURGH	26,000	51	23.50	5	10.0	80.00	1	2
Port Jervis	9,327	11	15.00	0	.....	.....	....	....
MIDDLETOWN	12,000	20	20.00	5	25.0	50.00	....	....
Warwick	6,000	7	14.70	2	28.5	.....	....	....
Goshen	4,646	12	30.00	5	42.5	.....	....	....

YORK STATE BOARD OF HEALTH

districts, cities, villages and towns during January, 1899

in *italics* and towns in Roman type]

Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
6	1	55	45	31	43	176	42	1,309	813	54	404	480	457	614	169	286	162	1,004
6	1	54	44	30	39	171	40	1,258	769	53	373	454	418	545	156	217	109	960
....	....	34	29	20	25	92	32	695	387	38	216	263	215	285	89	141	47	588
1	1	5	4	...	....	5	....	64	106	2	14	23	15	24	7	11	4	53
4	....	11	11	10	14	69	7	409	233	12	120	142	159	199	49	60	39	274
1	....	4	....	....	....	3	1	53	28	1	11	12	14	28	9	4	10	37
....	....	....	....	....	....	2	....	37	15	....	12	14	15	9	2	1	9	13
....	....	....	1	....	....	....	....	11	3	....	1	..	4	3	1	....	3	1
....	....	1	...	....	....	....	....	10	1	....	.....	2	.....	4	2	....	2	2
....	....	....	....	....	....	1	....	7	1	....	.....	...	1	1	1	1	2	1
....	....	....	....	....	...	....	....	1	.....	....	1	....	.....	.....	1	....	2	.....
....	....	....	....	....	....	....	...	1	.....	....	1	1	.....	.....	....	1	1	1
....	....	....	....	....	....	....	....	3	1	....	1	2	1	3	....	....	7	3
....	....	....	....	....	....	....	....	5	.....	....	.....	1	1	3	....	2	3	1
....	....	....	....	....	....	....	....	20	15	1	2	5	3	7	....	4	1	3
....	....	....	....	....	2	....	1	2	1	....	1	2	4	2	....	1	1	1
....	...	....	....	....	....	....	....	5	2	....	4	2	4	3	3	1	....	1
....	....	....	....	....	....	1	....	6	2	....	.....	....	1	3	....	....	1	.....
....	....	....	....	....	....	1	....	3	3	....	1	2	1	1	....	....	2	.....
....	....	....	....	....	....	1	....	9	1	....	1	....	2	5	1	1	4	3
....	....	....	....	....	....	1	....	3	3	....	1	1	1	3	....	....	4	1
....	....	....	....	....	....	....	....	3	1	....	3	....	1	2	....	....	1	1
...	....	....	....	1	2	1	1	47	10	....	14	6	15	29	4	6	19	21
....	....	1	...	4	6	17	38	367	135	3	76	90	148	180	33	37	119	119
....	....	....	....	2	2	5	3	47	28	....	16	22	23	30	5	4	8	26
....	....	....	....	....	..	....	3	15	9	....	2	3	3	4	....	2	4	7
....	....	...	....	...	....	....	6	28	16	1	7	10	10	12	4	3	4	9
....	....	....	....	....	....	....	2	8	3	....	2	1	1	4	2	....	....	2
....	....	....	....	....	....	....	....	1	2	....	.....	2	.....	.....	....	....	1	.....
....	..	....	....	....	....	....	....	6	1	1	1	....	1	2	....	....	....	1
....	....	....	....	....	1	....	....	2	.....	....	.....	1	5	1	....	1	1	1
....	..	....	....	....	....	....	....	6	1	....	2	1	2	1	....	....	2	.....
....	....	....	....	....	....	....	....	3	.....	....	.....	....	.....	.....	....	1	1	.....
....	....	....	....	....	....	1	1	1	.....	....	1	1	.....	2	....	....	....	2
....	....	....	....	....	....	1	3	7	.....	1	2	....	3	5	1	....	2	2
....	...	....	....	....	....	1	1	13	6	....	2	4	6	6	1	....	2	2
....	....	....	....	....	....	....	....	3	.....	..	1	....	1	1	....	....	....	1
....	....	....	....	...	....	....	....	4	.....	....	.....	1	4	2	1	....	....	1
.....	....	....	....	....	....	....	....	2	.....	....	1	....	1	2	....	....	1	.....
....	....	....	....	....	....	....	....	2	.....	....	.....	....	2	.....	..	....	....	.....
....	....	....	...	....	....	....	....	.....	1	....	.....	....	1	1	....	....	....	.....
....	....	....	....	....	....	...	7	8	8	....	2	6	10	6	2	2	5	4
....	...	....	....	....	....	2	....	7	2	....	.....	1	2	6	...	....	1	.....
....	....	....	....	....	....	....	....	2	.....	....	1	....	1	.....	....	....	....	.....
....	....	....	....	....	....	1	....	18	10	....	3	4	2	4	....	1	5	.....
....	....	....	....	....	....	....	....	2	2	....	.....	...	2	.....	....	1	2	2
....	....	....	....	....	....	1	....	5	1	....	2	1	2	1	....	....	4	3
....	....	....	....	....	....	....	....	1	.....	....	1	1	.....	2	1	....	....	1
....	....	....	....	....	....	....	....	3	2	....	.....	....	.....	2	....	1	1	1

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
HUDSON VALLEY DIST.—(*Con.*)								
Montgomery	5,259	18	36.00	0	.....	.....	....	....
Haverstraw	7,714	1	.....	0	.....	.....	....	....
Nyack	5,603	6	18.00	0	.....	166.00	...	....
Ramapo	6,600	5	10.00	0	.....	.....	....	....
Rest of district	275,000	566	25.00	82	14.0	66.00	4	10
ADIRONDACK AND NORTHERN DISTRICT								
Totals	390,000	727	22.00	119	16.5	70.00	7	13
WATERTOWN	17,000	35	24.00	11	30.0	55.00	....	2
Ellisburgh	4,228	8	23.00	1	12.5	.....	....	....
Cape Vincent	3,000	2	8.00	1	50.0	500.00	....	....
Clayton	4,250	3	.....	1	.....	.....	....	....
OGDENSBURG	12,000	32	32.00	9	28.0	22.00	....	....
Gouverneur	6,000	12	24.00	2	16.7	167.00	....	....
Potsdam	4,000	11	33.00	2	19.0	85.00	....	....
Canton	6,013	11	23.00	1	9.0	185.00	....	1
Malone	5,000	19	40.00	4	22.0	110.00	....	....
Plattsburg	8,440	23	32.00	7	30.0	185.00	....	1
Glens Falls	12,500	26	25.00	7	24.0	115.00	....	....
Whitehall	4,500	.....	.....	.....	.....	.....	....	....
Fort Edward	4,382	17	40.00	3	18.0	175.00	....	1
Kingsbury	5,112	18	35.00	1	5.5	110.00	....	....
Granville	5,281	4	.....	1	.....	.....	....	....
Greenwich	4,500	11	26.00	1	9.0	90.00	....	1
Lowville	4,000	8	24.00	2	25.0	....	....	....
Rest of district	280,000	487	20.00	66	15.0	40.00	7	7
MOHAWK VALLEY DISTRICT								
Totals	395,000	730	21.00	99	14.0	50.0	3	6
SCHENECTADY	27,000	50	22.22	9	18.0	100.00	....	....
Cobleskill	3,436	6	20.00	0	.....	.....	....	....
AMSTERDAM	20,000	30	18.00	10	33.3	33.50	1	....
Fort Plain	3,000	5	20.00	0	.....	.....	....	....
JOHNSTOWN	7,768	15	21.50	3	21.0	70.00	1	....
GLOVERSVILLE	15,000	34	27.20	10	30.0	.....	....	....
LITTLE FALLS	12,000	20	20.00	5	25.0	150.00	....	....
Herkimer	5,150	9	.....	1	.....	.....	....	....
Ilion	4,057	8	24.00	1	12.5	.....	....	....
UTICA	55,000	95	21.00	16	16.5	100.00	....	2
Whitestown	5,225	6	14.00	1	16.7	.....	....	....
ROME	14,000	28	24.00	2	10.0	45.00	1	....
Boonville	3,512	9	30.00	0	.....	.....	....	....
Camden	3,675	7	23.00	2	28.5	.....	....	....
Waterford	5,522	11	24.00	2	19.0	.....	....	....
Mechanicville	3,000	7	28.00	1	14.2	142.00	....	....
Ballston Spa	3,527	9	30.00	2	22.2	.....	....	....
Saratoga Springs	12,500	22	21.50	1	5.0	.....	....	....
Rest of district	192,000	359	29.50	34	9.5	40.00	....	4
SOUTHERN TIER DISTRICT								
Totals	425,000	763	21.50	73	10.0	35.50	2	8
BINGHAMTON	45,000	67	18.00	6	9.0	175.00	....	1
Owego	6,000	12	24.00	1	8.5	.....	....	....
Candor	3,525	6	20.60	0	.....	.....	....	....
Waverly	4,123	2	6.00	0	.....	.....	....	....
ELMIRA	35,000	69	24.00	13	20.0	70.00	....	2

FOR JANUARY—(*Continued*)

Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	....	8	4	....	1	1	1	1	1	....	....	1
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	.....
....	....	....	....	....	....	....	1	2	.....	....	.....	....	1	1	....	....	1	.....
....	....	....	....	....	....	....	....	....	....	....	....	....	2	1	....	1	....	1
....	....	1	....	2	3	6	11	161	39	....	29	30	57	33	15	20	73	53
2	....	1	....	1	11	6	8	185	54	4	41	33	66	78	22	18	106	66
....	....	....	....	....	....	....	....	15	1	....	3	2	1	3	1	1	3	3
....	....	....	....	....	....	....	....	.....	.....	....	1	1	1	1	....	....	2	2
....	....	....	....	....	....	....	1	.....	.....	....	.....	.....	.....	.....	..	....	1	.....
....	....	....	....	....	....	....	....	2	1	....	.....	.....	.....	.....	....	....	....	.....
1	....	....	....	....	2	....	1	18	1	....	.....	2	1	.....	....	....	4	3
....	....	....	....	....	1	....	....	4	....	....	.....	....	.....	2	....	....	2	2
....	....	....	....	1	....	....	....	2	.....	....	2	....	.....	2	2	....	2	.....
....	....	....	....	....	1	....	....	3	1	....	1	....	3	1	....	....	....	.....
....	....	....	....	....	1	....	1	3	2	....	1	....	2	1	1	....	3	4
1	....	....	....	....	....	2	....	11	.....	....	1	....	2	1	....	....	....	3
....	....	1	....	....	2	....	....	1	3	....	2	2	4	5	....	1	2	3
....	....	....	....	....	....	....	....	.....	.....	....	.....	.....	.....	.....	....	....	....	.....
....	....	....	....	....	....	1	1	4	2	....	.....	3	.....	2	1	....	2	.....
....	....	....	....	....	1	....	1	5	1	...	1	3	2	.....	....	1	2	1
....	....	....	....	....	....	....	....	2	....	....	.....	....	.....	1	1	....	....	.....
....	....	....	....	....	....	....	....	2	2	....	....	....	4	1	....	....	1	.....
....	....	....	....	....	....	....	....	3	....	....	2	....	2	.....	....	....	....	1
....	....	....	....	...	3	3	3	110	40	4	27	25	43	58	16	15	32	44
2	....	1	2	3	5	11	4	196	57	6	37	32	85	86	22	19	38	65
....	....	....	....	....	2	2	1	13	5	....	2	3	5	6	1	2	2	6
....	....	....	....	....	....	....	....	3	1	....	.....	....	.....	.....	....	....	2	.....
....	....	....	....	....	....	....	....	11	3	....	3	2	2	.....	....	....	2	6
....	....	....	....	....	....	....	....	1	3	....	.....	....	1	.....	....	....	.....	.....
....	....	....	....	....	....	....	....	.....	3	....	1	...	4	4	....	....	2	1
....	....	....	....	....	....	....	....	12	2	....	.....	....	6	3	....	1	3	5
....	....	....	1	....	1	1	....	3	1	....	.....	3	1	1	1	2	.....	.....
....	....	....	....	....	....	....	1	2	1	1	.....	....	.....	1	2	....	1	.....
....	....	....	....	....	....	....	....	2	.....	....	2	....	2	1	....	....	....	1
1	....	1	....	....	1	5	....	26	3	3	3	1	12	7	2	2	11	10
....	....	....	....	....	....	....	....	1	.....	....	1	....	1	1	....	....	2	.....
....	....	....	....	....	....	....	....	2	1	....	2	....	3	6	....	1	3	2
....	....	....	....	....	....	....	....	1	1	....	1	....	2	1	....	....	3	.....
....	....	....	....	....	....	....	....	3	.....	....	1	....	.....	1	....	....	1	1
....	....	....	....	....	....	....	....	4	1	....	1	2	.....	1	....	1	....	1
....	....	....	....	....	....	....	1	.....	1	....	1	....	1	2	....	....	....	1
....	....	....	....	....	....	....	....	2	1	....	2	...	1	2	....	....	1	.....
....	....	....	....	....	....	....	....	5	4	1	1	2	2	2	1	....	1	1
1	....	....	1	3	1	2	2	93	23	1	16	19	29	46	15	10	54	30
....	....	1	1	1	3	7	4	179	53	1	37	33	94	104	23	27	109	71
....	....	....	....	....	....	....	2	3	6	....	1	....	2	14	2	7	4	20
....	....	....	....	....	....	....	....	6	1	....	.....	....	4	1	.....	....	....	.....
....	....	....	....	....	....	....	....	2	.....	....	1	....	1	.....	....	....	1	1
....	....	....	....	....	....	....	....	1	.....	....	.....	....	.....	.....	....	....	1	.....
....	....	....	....	1	2	....	....	23	3	....	1	4	6	3	2	3	4	5

SANITARY DISTRICT	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
SOUTHERN TIER DIST.—(*Con.*)								
Horseheads	3,319	4	15.00	1	25.0	.....	....	....
HORNELLSVILLE	12,000	18	18.00	0	.....	55.00	1	....
Bath	3,261	6	22.00	1	16.7	167.00	....	1
CORNING	10,025	21	25.00	4	20.0	145.00	....	....
Wellsville	5,033	8	19.20	1	12.5	.....	....	....
OLEAN	10,000	9	11.00	1	11.0	110.00	....	....
Salamanca	3,700	1	.....	0	.....	.....	....	....
DUNKIRK	13,200	11	10.00	2	19.0	.....	....	....
JAMESTOWN	18,627	43	26.00	5	12.0	45.00	....	....
Westfield	3,000	2	.....	1	.....	.....	....	....
Fredonia	3,400	12	40.00	1	8.5	82.50	....	1
Rest of district	250,000	472	22.50	37	8.0	22.00	1	3
EAST CENTRAL DISTRICT Totals	415,000	712	24.00	83	12.0	50.00	....	7
SYRACUSE	120,000	161	16.10	35	22.0	75.00	....	3
Baldwinsville	3,040	6	24.00	0	.....	.....	....	....
De Witt	5,182	10	23.50	1	10.0	.....	....	....
Cortland	8,600	19	26.50	3	16.0	.....	....	....
Homer	3,000	8	32.00	0	.....	.....	....	....
Oneida	6,100	14	27.50	1	7.0	.....	....	....
Hamilton	4,110	3	9.00	0	.....	.....	....	....
Cazenovia	3,803	4	13.00	0	.....	.....	....	....
Brookfield	3,235	4	15.00	0	.....	.....	....	....
Norwich	6,000	13	26.00	3	23.0	.....	....	....
Oneonta	8,000	15	22.50	1	6.7	67.00	...	....
Worcester	2,670	1	.....	0	.....	.....	....	....
Cooperstown	3,000	3	12.00	0	.....	.....	....	....
Walton	4,811	13	32.00	0	.....	65.00	....	....
Delhi	3,000	8	32.00	0	.....	.....	....	....
Liberty	3,500	12	35.00	0	.....	335.00	....	....
Rest of district	230,000	418	22.00	39	10.0	40.00	....	4
WEST CENTRAL DISTRICT Totals	314,000	525	20.00	48	10.0	32.50	1	1
AUBURN	25,000	42	20.00	4	9.0	35.00	....	....
ITHACA	13,460	12	11.50	0	.....	.....	....	....
Hector	4,832	5	13.00	0	.....	200.00	....	...
Waterloo	4,350	10	27.50	0	.....	100.00	....	....
Seneca Falls	6,500	6	.....	0	.....	.....	....	....
GENEVA	10,000	25	30.00	2	8.0	40.00	...	....
Canandaigua	5,868	12	25.00	2	16.7	.....	....	....
Manchester	4,181	12	30.00	0	.....	.....	....	....
Phelps	5, 50	5	12 00	0	.....	.....	....	....
Penn Yan	4,800	14	30.00	2	14.2	.....	....	....
Batavia	7,221	10	17.00	1	10.0	.....	...	....
Dansville	3,758	9	27.00	1	10.0	.....	....	....
Le Roy	3,000	7	28.00	0	.....	.....	....	....
Warsaw	4,700	12	29.00	0	.....	.....	....	....
Rest of district	212,000	344	19.00	36	10.5	40.00	1	1
LAKE ONTARIO AND WESTERN DISTRICT Totals	875,000	1,306	19.00	253	19.0	60.00	7	14
BUFFALO	360,000	444	14.80	118	26.5	75.00	3	4
TONAWANDA	9,000	10	14.00	1	10.0	100.00	....	....
Amherst	4,000	6	18.00	0	.....	.....	....	....

FOR JANUARY—(*Continued*)

Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	....	.....	.....	....	.....	....	1	.....	1	....	...	2
....	....	....	....	....	....	....	....	2	1	....	3	....	3	4	....	1	4	1
....	....	....	....	....	....	....	....	2	....	....	1	1	.....	.....	....	...	1	.....
....	....	....	1	....	....	2	....	6	2	....	1	....	2	3	....	....	1	1
....	....	....	....	....	....	....	....	2	1	....	1	....	.....	1	....	....	2	1
....	....	....	....	....	....	1	....	1	.....	....	1	1	1	2	1	....	...	1
....	....	....	....	....	....	....	....	.....	.....	...	.....	...	.....	.....	....	....	1	.....
....	....	....	....	....	....	2	....	2	.....	....	1	1	3	1	...	...	3	.....
....	....	....	....	....	....	2	....	18	4	....	.....	3	3	2	3	....	5	3
....	...	....	....	....	....	....	....	.....	.....	....	.....	...	.....	.....	....	....	1	1
....	....	....	....	....	....	....	....	.....	2	....	.....	1	.....	2	....	1	4	1
....	...	1	....	....	1	2	2	106	28	1	26	27	66	66	14	15	77	34
....	...	4	2	1	3	12	3	196	51	4	40	36	76	85	27	14	108	43
....	....	2	....	....	....	4	3	44	14	2	6	8	16	18	5	4	17	15
....	....	....	....	....	....	....	....	.....	.....	....	.....	....	1	1	1	1	1	1
....	....	....	....	....	....	....	....	4	.....	....	1	....	1	1	....	....	3	.....
....	....	....	....	....	....	....	....	3	.....	....	2	1	1	3	2	1	3	3
....	....	....	....	....	....	....	....	3	.....	....	.....	....	3	.....	....	....	3	.....
....	....	....	....	....	....	....	....	5	1	....	.....	....	1	2	....	....	5	.....
....	....	....	....	....	....	....	....	1	1	....	1	....	.....	.....	....	....	...	.....
....	....	....	....	....	....	....	....	.....	.....	....	.....	1	.....	1	1	....	1	.....
....	....	....	....	....	....	....	....	.....	.....	1	.....	1	.....	.....	...	....	2	.....
....	....	....	....	....	1	....	....	4	.....	....	2	1	.....	2	2	....	2	.....
....	....	....	....	....	....	....	....	7	.....	....	1	1	1	2	1	....	1	.....
....	....	....	....	....	....	....	....	.....	.....	....	.....	...	.....	.....	....	....	1	.....
....	....	....	....	....	....	....	....	.....	1	....	.....	...	.....	1	1	....	...	.....
....	....	....	....	....	....	1	....	7	.....	....	.....	1	.....	1	1	....	1	1
....	....	....	....	....	....	....	....	3	.....	....	.....	...	.....	3	...	....	2	.....
....	...	....	2	....	....	....	....	2	2	....	.....	...	1	1	1	1	2	.....
....	....	2	....	1	2	7	....	118	32	1	27	23	52	49	12	7	64	23
1	....	4	1	....	....	5	5	120	40	...	33	31	74	63	4	9	88	45
....	....	1	....	....	....	....	....	13	6	....	3	2	4	3	....	1	5	4
....	....	....	....	....	....	....	....	4	2	....	.....	....	1	1	....	1	3	.....
....	....	....	....	....	....	....	1	...	.....	....	.....	....	1	.....	....	....	3	.....
....	....	....	....	....	....	....	1	3	1	....	1	1	.....	.....	....	....	3	.....
....	....	....	....	....	....	....	....	.....	1	....	.....	2	1	1	....	....	1	.....
....	....	....	....	....	....	1	....	7	3	....	.....	1	3	4	....	....	3	3
....	....	....	....	....	....	....	....	6	.....	....	3	....	1	1	....	....	1	.....
....	....	....	....	....	....	....	1	2	.....	....	1	1	4	.....	....	....	2	1
....	....	....	....	....	....	....	....	3	.....	....	.....	....	1	1	....	....	...	.....
....	....	....	....	....	....	....	....	2	1	...	2	2	1	1	....	1	3	.....
....	....	....	....	....	....	....	....	3	2	....	.....	....	2	.....	....	....	2	.....
....	....	....	....	....	....	....	....	2	.....	....	2	1	.....	2	....	....	1	.....
....	....	....	....	....	....	....	....	1	1	....	.....	....	2	2	....	....	...	.....
....	....	....	....	....	....	....	....	3	1	....	1	....	2	3	....	....	1	1
1	....	3	1	....	....	4	2	71	22	....	19	23	51	44	4	6	60	34
1	....	4	....	2	6	21	23	323	101	4	67	73	114	176	53	40	137	140
1	....	1	....	2	3	5	14	110	33	1	16	23	30	63	19	14	40	61
....	....	....	....	....	....	1	....	.....	1	....	.....	....	1	3	....	1	1	2
....	....	....	....	....	....	....	....	.....	1	.....	1	....	.....	.....	....	....	2	2

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
LAKE ONTARIO AND WESTERN DISTRICT—(*Continued*)								
NORTH TONAWANDA	9,000	11	15.00	5	.....	.....	....	....
LOCKPORT	16,068	34	25.00	6	17.8	150.00	....	2
NIAGARA FALLS	16,000	24	25.00	10	30.0	150.00	....	2
Medina	4,500	6	16.00	0	.....	.....	....	....
Albion	4,536	6	16.00	0	.....	.....	....	....
Brockport	3,742	10	28.00	0	.....	100.00	....	1
ROCHESTER	175,000	229	16.46	41	17.0	71.00	....	8
Palmyra	4,173	6	18.00	1	16.7	.....	....	....
Newark	4,600	7	19.00	0	.....	.....	....	....
Lyons	6,127	11	22.50	1	9.0	90.00	....	....
Clyde	3,000	8	32.00	1	12.5	.....	....	....
OSWEGO	22,000	43	23.50	8	18.5	25.00	....	1
Fulton	4,214	9	24.00	2	22.2	.....	....	....
Richland	3,687	8	25.00	1	12.5	125.00	....	....
Rest of district	231,000	299	20.00	56	15.0	45.00	4	2
Totals for the State	7,110,000	12,421	21.00	2,590	21.0	65.00	52	111
Totals for December, 1898	....	10,877	19.00	2,269	21.0	70.00	35	156
Totals for January, 1898	.....	9,632	17.00	2,416	25.0	95.50	34	122

REMARKS.—There were 12,421 deaths reported during January, an average daily rate of 400. Common epidemic diseases caused 800 deaths, against 765 in December, and 900 in January. From acute respiratory diseases there were reported nearly 3,000 deaths, 700 more than in degree, consumption likewise, deaths attributed to old age were double in number those of reported mortality from cancer, violence and puerperal diseases. The increase has been diseases of the nervous system, and to a less degree in other local diseases, and those enfeebled of grippe, from which directly many deaths have been reported, but the majority have been feebled conditions. It was estimated that grippe caused 1,800 deaths in December; this either directly caused or hastened by it, or nearly 25 per cent of the total mortality of the York, with half the entire population, having but 600 of the 2,800 increased mortality over last deaths showed an increase of 1,200, and acute respiratory diseases, old age and unclassified 7 per cent of the total mortality of the month; there was a moderate increase from December nating as grippe, and decrease in typhoid fever and malaria. There was 1 death from small- county smallpox continues at Le Roy, and cases have recently developed in the town of yet ascertained; there is also a case at New Hartford, Oneida county, coming from Nebraska. —14°; more clear days than usual, low relative humidity, high barometer and precipitation

FOR JANUARY—(*Concluded*)

Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	1	....	2	.....	....	2	....	.....	2	....	2	1	1
....	....	....	....	....	....	....	....	6	1	1	2	1	3	2	3	....	4	11
....	....	....	....	....	...	1	1	2	1	....	3	1	.....	2	3	3	3	4
....	....	....	....	..	....	....	....	3	1	....	.....	....	1	.....	....	....	....	1
...	....	....	....	....	...	....	....	1	1	....	1	....	1	1	....	....	1	.....
....	....	....	....	....	....	....	....	2	.....	....	.....	1	1	1	1	....	2	1
....	....	3	....	....	....	3	3	59	25	2	19	16	18	37	11	7	12	16
....	....	....	....	....	....	....	....	1	.....	....	.....	1	.....	2	....	1	....	1
...	....	....	....	....	....	....	....	3	.....	....	.....	1	2	.....	....	....	1	.....
....	....	....	....	....	....	....	1	3	.....	....	.....	1	.....	2	....	1	3	.....
....	....	....	....	....	....	....	....	1	1	....	.....	....	.....	1	....	1	4	.....
....	....	....	....	....	....	....	....	13	4	....	3	3	4	6	1	....	5	2
....	....	....	....	....	....	....	....	1	.....	....	1	1	.....	2	....	1	2	1
....	....	....	....	....	....	....	....	2	1	....	.....	2	.....	.....	....	....	2	.....
....	....	....	....	....	3	5	3	106	30	..	19	19	49	51	14	8	53	33
12	1	71	51	43	77	255	127	2,965	1,304	76	735	818	1,116	1,336	351	400	917	1,553
22	....	53	38	18	59	244	141	2,250	1,185	71	657	345	1,091	1,177	369	479	562	1,435
26	....	123	112	21	44	323	118	1,765	1,051	91	642	739	1,013	1,032	346	400	467	1,168

against 850 in December; the number of deaths exceeds that of January, 1898, by 2,800. 1898. The mortality under five years of age was greater than in either of the other months. December and 1,200 more than in January, 1898. Other local diseases were increased to a less January last, and from unclassified causes there were 400 more. There was no change in the chiefly in pneumonia and acute bronchitis (which caused 23 per cent of the total deaths), in by age or by ill-defined conditions. The most of this increase is due to the prevailing epidemic returned as from the causes noted as increases, and chiefly acute respiratory diseases and en- month it is estimated that it has increased the mortality by 3,000, this number having been month. The fatality was relatively greatest in the rural parts of the state, the city of New January and 300 of the 700 increase from acute respiratory diseases; rural towns reporting 2,300 diseases had double the mortality of last January. The common epidemic diseases caused but in cerebro-spinal meningitis, whooping cough and diarrheal diseases, some of the latter origi- pox in New York city; the cases at Rochester and vicinity have nearly recovered; in Genesee Darien, and in the adjoining county of Erie there is a case at Tonawanda, the origin being not The month's average temperature was about the normal, with extreme ranges from 53° to slightly deficient, winds variable and high.

MONTHLY BULLETIN OF THE NEW

Abstracts of reports of deaths and their causes in the following

[Cities are printed in SMALL CAPS, villages

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
MARITIME DISTRICT Totals	3,896,000	5,713	19.40	1,663	29.0	76.50	24	16
CITY OF NEW YORK Totals	3,550,053	5,306	19.52	1,564	30.0	77.50	24	16
BOROUGH OF MANHATTAN	1,958,569	2,968	19.80	929	31.0	84.00	16	8
BOROUGH OF THE BRONX	163,537	292	23.21	72	25.0	60.00	1	1
BOROUGH OF BROOKLYN	1,231,548	1,751	18.80	502	28.6	80.00	5	7
BOROUGH OF QUEENS	134,139	189	18.36	49	26.0	65.00	....	....
BOROUGH OF RICHMOND	67,260	106	20.56	12	12.0	60.00	2	....
Oyster Bay	15,000	23	18.00	2	8.5	42.50	....	....
Hempstead	24,000	24	12.00	0	.....	165.00	....	....
North Hempstead	8,726	15	23.00	2	16.7	.....	....	....
Southold	7,671	6	11.00	0	.....	.....	....	....
Sag Harbor	3,060	3	12.00	1	33.0	.....	....	....
Huntington	8,253	5	.....	0	.....	.....	....	....
Brookhaven	13,500	38	30.00	1	3.0	.....	....	....
YONKERS	42,000	64	17.86	26	40.0	65.00	....	....
Greenburgh	12,000	15	15.50	3	20.0	.....	....	....
MOUNT VERNON	15,513	25	20.00	4	16.0	40.00	....	....
Port Chester	7,547	.....	.....	.....	.....	.....	....	....
Sing Sing	9,500	18	22.50	9	50.0	280.00	....	....
NEW ROCHELLE	8,217	16	23.50	4	25.0	125.00	....	....
Peekskill	10,000	10	12.00	2	20.0	100.00	....	....
White Plains	4,042	8	24.00	2	25.0	.....	....	....
Rest of district	90,000	137	19.00	43	31.5	50.00	....	....
HUDSON VALLEY DISTRICT Totals	700,000	1,123	15.00	211	19.0	100.00	7	41
ALBANY	100,000	212	25.50	52	24.5	175.00	3	12
COHOES	25,000	49	23.50	19	40.0	300.00	....	3
TROY	65,000	114	22.50	17	15.0	87.50	1	7
WATERVLIET	14,000	18	15.50	0	.....	165.00	1	1
Green Island	4,500	6	15.00	1	16.7	166.70	....	1
Lansingburg	12,000	16	16.00	4	25.0	125.00	....	....
Hoosick Falls	7,014	4	.....	2	.....	.....	....	....
RENSSELAER	8,000	12	18.00	5	41.5	165.00	....	1
Coxsackie	3,824	8	25.00	0	.....	.....	....	....
Catskill	5,000	7	17.00	0	.....	142.85	....	1
HUDSON	9,632	21	26.00	6	28.0	200.00	...	1
KINGSTON	25,000	33	16.50	10	30.0	30.00	....	1
Ellenville	3,000	4	16.00	0	.....	.....	....	....
Marbletown	3,669	5	16.00	0	.....	200.00	....	....
Rosendale	6,125	7	14.00	0	.....	.....	....	....
Esopus	5,035	9	21.30	1	11.0	.....	....	....
Saugerties	4,237	1	.....	0	.....	.....	....	....
POUGHKEEPSIE	25,000	46	22.50	5	11.0	175.00	....	3
Fishkill	12,000	21	21.00	1	5.0	50.00	....	....
Wappinger Falls	3,718	3	10.00	1	33.0	.....	....	....
NEWBURGH	26,000	29	14.50	9	30.0	30.00	....	1
Port Jervis	9,327	6	.....	1	.....	.....	....	....
MIDDLETOWN	12,000	16	16.00	5	32.0	62.50	....	1
Warwick	6,000	17	30.00	7	5.0	.....	....	....
Goshen	4,646	7	18.00	0	.....	.....	....	....

YORK STATE OARD OF HEALTH

districts, cities, villages and towns during February, 1899

In *italics* and towns in Roman type.]

Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
13	1	64	33	26	38	169	52	1,268	767	38	342	474	458	531	151	256	159	342
12	1	62	33	24	34	160	46	1,184	725	37	315	453	412	461	147	237	126	727
4	1	39	18	12	31	81	30	647	392	23	183	252	218	249	82	145	60	477
2	....	2	2	3	1	4	....	60	83	5	10	20	19	22	6	10	9	31
3	....	19	13	9	2	68	12	417	222	7	108	150	137	152	51	58	47	269
2	....	2	....	....	....	6	2	43	17	2	14	17	18	23	3	16	5	14
1	....	....	....	....	....	1	2	17	11	....	5	14	20	9	5	8	5	6
....	....	....	....	....	....	1	....	5	4	....	.....	3	2	.....	....	1	6	.....
....	....	....	....	1	....	....	1	6	3	....	3	3	2	1	....	3	1	.....
....	....	....	....	....	....	....	....	2	1	....	1	1	4	1	1	3	....	1
....	....	....	....	....	....	....	....	.....	1	....	.....	1	1	3	....	....	....	.....
....	....	....	....	....	....	....	....	1	.....	....	.....	....	.....	1	....	....	1	.....
....	....	....	....	....	....	....	....	.....	1	....	.....	....	.....	2	....	....	....	2
....	....	....	....	....	2	2	1	16	6	....	2	2	5	11	3	2	2	9
....	....	....	....	....	....	....	....	4	.....	....	3	....	3	1	....	3	1	.....
....	....	....	....	....	....	....	1	3	2	....	3	1	7	2	....	3	....	3
....	....	....	....	....	....	....	....	.....	.....	....	.....	....	.....	.....	....	....	....	.....
1	....	1	....	....	....	3	....	3	2	....	.....	1	1	3	....	....	....	3
....	....	1	....	....	....	1	....	6	3	....	1	....	2	1	....	1	....	.....
....	....	....	....	....	....	....	1	2	3	....	.....	1	2	1	....	....	....	.....
....	....	....	....	....	....	....	....	.....	.....	....	1	....	1	3	....	1	....	3
....	....	....	....	1	2	2	3	31	11	....	9	4	12	24	....	1	16	23
6	....	....	2	....	13	19	24	218	105	2	65	67	131	147	30	38	99	109
....	....	....	1	....	6	7	9	31	25	....	18	13	30	23	2	6	16	10
2	....	....	1	....	6	1	1	19	3	....	1	3	5	3	2	....	....	6
....	....	....	....	....	....	1	1	21	15	1	7	8	9	15	4	3	7	14
....	....	....	....	....	....	1	....	6	1	....	.....	2	1	3	....	....	....	2
....	....	....	....	....	....	..	..	1	1	....	.....	....	1	.....	....	....	....	2
....	....	....	....	....	....	1	1	2	1	....	1	2	1	3	....	1	1	2
....	....	....	....	....	....	1	1	1	.....	....	1	....	.....	.....	....	....	....	.....
....	....	....	....	....	....	....	1	2	.....	....	1	....	1	1	....	1	....	4
....	....	....	....	....	....	....	....	5	1	....	.....	....	.....	.....	1	1	....	.....
....	....	....	....	....	....	....	....	1	.....	....	.....	....	1	2	....	....	1	1
....	....	....	....	....	....	2	1	1	1	....	.....	....	5	5	1	....	1	3
....	....	....	....	....	....	....	....	11	1	....	2	1	5	3	2	3	2	2
....	....	....	....	....	....	....	....	1	.....	....	.....	....	.....	2	....	....	1	.....
1	....	....	....	....	....	....	....	.....	.....	....	.....	....	3	.....	....	....	1	.....
....	....	....	....	....	....	....	....	1	.....	....	.....	....	1	2	1	1	....	1
....	....	....	....	....	....	....	....	.....	.....	....	.....	1	2	3	....	....	3	.....
....	....	....	....	....	....	....	....	1	.....	....	.....	....	.....	.....	....	....	....	.....
1	....	....	....	....	1	1	1	5	4	....	4	4	5	4	4	1	4	4
1	....	....	....	....	....	....	....	4	3	....	.....	1	5	1	1	1	3	1
....	....	....	....	....	....	....	....	1	1	....	.....	....	....	1	....	....	....	.....
....	....	....	....	....	....	....	....	7	6	....	3	4	3	.....	..	2	....	3
....	....	....	....	....	....	....	....	.....	.....	....	.....	.....	.....	.....	1	....	2	3
....	....	....	....	....	....	....	....	1	1	....	.....	1	3	5	....	1	1	2
....	....	....	....	....	....	....	....	8	.....	....	....	2	1	3	....	....	2	1
....	....	....	....	....	....	....	....	.....	.....	....	1	1	1	.....	1	1	1	1

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro spinal meningitis	Typhoid fever
HUDSON VALLEY DIST.—(*Con.*)								
Montgomery	5,259	8	18.25	3	37.5	.....	....	....
Haverstraw	7,714	13	19.10	3	25.0	165.00	....	....
Nyack	5,603	5	12.00	3	60.0	.....	....	....
Ramapo	6,600	11	20.00	4	36.5	.....	....	....
Rest of district	275,000	416	18.50	52	12.5	52.50	2	8
ADIRONDACK AND NORTHERN DISTRICT								
Totals	390,000	509	15.00	83	17.0	82.00	2	14
WATERTOWN	17,000	34	24.00	7	20.5	87.50	....	2
Ellisburgh	4,293	4	12.00	0	.....	.....	....	....
Cape Vincent	3,000	2	8.00	0	.....	.....	....	....
Clayton	4,250	8	[illegible]	0	.....	.....	....	....
OGDENSBURG	12,000	15	[illegible]	6	40.0	266.60	....	2
Gouverneur	6,000	3	6.00	0	.....	.....	....	....
Potsdam	4,000	5	15.00	0	.....	200.00	....	....
Canton	6,013	13	25.00	2	16.0	160.00	2	....
Malone	5,000	7	17.20	2	28 5	425.00	....	1
Plattsburg	8,440	16	23.00	6	37.5	.....	....	....
Glens Falls	12,500	8	.....	1	12.5	.....	....	....
Whitehall	4,500	.....	.....	.....	.....	.....	....	....
Fort Edward	4,382	4	12.00	0	.....	.....	....	....
Kingsbury	5,112	6	14.40	3	50.0	.....	....	....
Granville	5,281	7	16.50	0	.....	.....	....	....
Greenwich	4,500	3	.....	1	33.0	.....	....	....
Lowville	4,000	2	.....	0	.....	.....	....	....
Rest of district	280,000	372	15.00	55	15.0	50.00	1	8
MOHAWK VALLEY DISTRICT								
Totals	395,000	565	17.20	81	14.5	57.00	3	2
SCHENECTADY	27,000	47	21.00	9	20.0	65.00	....	....
Cobleskill	3,436	5	18.00	0	.....	.....	....	....
AMSTERDAM	20,000	33	19.80	13	40.0	30.00	....	....
Fort Plain	3,000	6	30.00	1	12.5	.....	....	....
JOHNSTOWN	7,768	12	.....	2	.....	.....	....	....
GLOVERSVILLE	15,000	24	19.20	8	33.3	165.00	1	....
LITTLE FALLS	12,000	1	.....	0	.....	.....	....	....
Herkimer	5,150	2	.....	2	.....	.....	....	....
Ilion	4,057	4	12.00	2	50.0	.....	....	....
UTICA	55,000	75	17.50	7	9.0	90.00	....	....
Whitestown	5,225	7	16.00	1	14.2	.....	....	....
ROME	14,000	24	20.00	3	12.5	85.00	....	....
Boonville	3,512	3	11.00	0	.....	.....	....	....
Camden	3,675	5	16.00	2	40.0	200.00	....	....
Waterford	5,532	13	28.00	4	30.0	154.00	....	....
Mechanicville	3,000	6	24.00	1	16.7	.....	....	....
Ballston Spa	3,527	4	14.20	1	25.0	250.00	....	....
Saratoga Springs	12,500	20	19.50	2	10.0	.....	....	....
Rest of district	193,000	254	16.00	22	9.0	50.00	2	2
SOUTHERN TIER DISTRICT								
Totals	435,000	626	17.50	81	13.0	55.00	2	14
BINGHAMTON	45,000	56	15.00	3	5.0	40.00	1	....
Owego	6,000	10	20.00	1	10.0	.....	....	....
Candor	3,525	5	17.00	0	.....	.....	....	....
Waverly	4,123	12	30.00	2	16.7	250.00	....	1
ELMIRA	40,000	59	17.75	12	20.0	65.00	....	....

FOR FEBRUARY—(*Continued*)

Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	...	...	....	1	.....	....	1	....	1	1	....	....	1	..
1	....	....	..	....	....	....	1	1	.....	....	.....	1	2	2	....	1	1	..
....	....	....	....	....	....	....	....	1	.....	....	.....	....	1	.....	....	1	1	1
....	....	...	...	....	...	....	....	3	1	...	2	...	.....	1	1	...	...	..
....	....	....	....	....	....	4	7	89	40	1	23	23	44	64	9	14	50	38
....	....	1	1	2	3	2	5	114	47	2	25	31	50	59	18	11	77	41
....	....	....	....	...	....	....	....	4	1	1	4	3	2	4	1	3	6	2
....	....	....	....	....	....	....	....	1	.....	....	.....	....	1	1	....	....	1	.....
....	....	....	....	....	....	....	....	.....	.....	....	.....	....	1	.....	....	....	1	.....
....	....	....	....	....	....	....	....	.....	.....	....	2	....	.....	1	1	....	4	.. ...
...	....	1	....	....	....	....	1	3	.....	....	.....	2	1	2	....	....	1	2
....	....	....	....	....	....	....	....	.....	.....	....	.....	....	.....	1	....	....	2	.....
....	....	....	1	....	...	....	....	2	.....	...	.....	....	1	1	....	....	...	.....
....	....	....	.	....	2	....	....	2	.....	....	.....	....	3	2	....	....	3	1
....	....	....	.	....	2	....	....	1	.....	....	.....	....	1	1	....	....	1	.....
....	....	....	....	....	...	....	....	6	.....	....	1	1	1	4	....	....	1	2
....	....	..	....	....	....	....	....	2	2	....	1	....	1	.....	....	....	2	.....
....	....	....	....	....	....	.	....	.....	.....	...	.....	....	.....	.....	....	....	...	.....
....	....	....	....	....	....	....	....	1	2	....	.....	....	1	.....	....	....	...	.....
....	....	....	....	....	....	....	....	3	.....	....	.....	....	.....	.....	....	....	...	3
....	....	....	..	....	....	....	....	2	1	....	.....	2	.....	1	....	....	1	.....
....	....	....	....	....	....	....	....	.....	1	....	.....	....	.....	2	....	....	...	.....
....	....	....	....	....	....	....	....	1	.....	....	.....	....	.....	.....	....	....	1	.....
....	....	....	....	2	1	2	4	86	40	1	17	26	37	39	16	8	53	31
....	....	3	....	1	6	15	3	118	52	5	42	28	63	83	20	12	63	46
....	....	....	....	....	2	1	....	14	3	2	2	....	8	5	1	1	5	3
....	....	....	....	....	....	....	....	1	.....	...	.....	....	2	1	....	....	....	1
....	....	....	....	....	....	1	....	3	1	..	.....	2	4	4	1	1	3	3
....	....	..	....	....	....	....	....	.....	1	....	1	....	.....	2	....	1	1	2
....	....	....	....	....	....	....	....	2	1	....	.....	1	2	4	....	....	1	1
....	....	....	....	....	2	1	....	4	3	....	2	....	1	4	1	1	1	3
....	....	..	....	....	....	....	....	.....	.....	....	.....	....	.....	.....	....	....	....	1
....	....	....	....	....	....	....	....	1	.....	....	1	....	.....	.....	....	....	....	.....
....	....	....	....	....	....	....	....	2	.....	....	.....	1	.....	.....	....	....	1	.....
....	....	3	....	....	....	2	2	13	9	....	4	3	9	13	4	1	8	4
....	....	....	....	....	....	....	....	1	.....	1	2	....	.....	3	....	....	....	.....
....	....	....	....	....	....	2	....	2	3	....	3	....	3	4	2	2	....	3
....	....	....	....	....	....	....	....	2	.....	....	.....	....	.....	1	....	....	....	.....
....	....	....	....	....	....	1	....	2	1	....	.....	....	1	.....	....	....	....	.....
....	....	....	...	1	1	....	....	.....	3	....	.....	2	1	2	....	....	1	2
....	....	....	....	....	....	....	....	1	1	....	1	1	.....	1	....	....	....	1
....	....	....	....	....	....	....	1	2	.....	....	.....	....	1	.....	....	....	....	.....
....	....	....	....	....	1	7	....	54	23	2	24	17	26	33	6	2	40	15
....	....	4	1	....	6	3	5	129	39	1	50	42	67	78	24	15	87	59
....	....	....	....	....	....	....	1	11	5	....	4	8	8	5	2	....	9	2
....	....	....	....	....	....	....	....	3	.....	....	.....	....	1	.....	....	....	4	2
....	....	....	....	....	....	....	....	1	.....	....	.....	....	.....	4	....	....	....	.....
....	....	1	....	....	1	....	....	1	1	....	1	....	2	2	1	....	....	1
....	....	....	....	....	4	....	....	12	8	....	3	6	4	12	....	....	4	6

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
SOUTHERN TIER DIST.—(*Con.*)								
Horseheads	3,319	3	10.85	0	.....	.....	....	....
HORNELLSVILLE	12,000	10	10.00	1	10.0	100.00	....	1
Bath	3,261	5	18.40	0	.....	200.00	....	....
CORNING	10,025	9	10.78	1	11.1	.....	....	....
Wellsville	5,033	4	10.00	0	.....	.....	....	....
OLEAN	10,080	12	14.40	4	33.3	66.50	....	....
Salamanca	2,700	3	10.00	1	33.3	333.33	....	....
DUNKIRK	13,206	16	14.40	5	31.2	62.50	....	....
JAMESTOWN	18,627	19	12.25	4	21.0	.....	....	....
Westfield	3,000	5	20.00	0	.....	.....	....	....
Fredonia	2,400	3	11.00	1	33.3	.....	....	....
Rest of district	250,000	275	13.50	33	12.5	42.00	4	2
EAST CENTRAL DISTRICT Totals	415,600	464	13.50	58	13.3	40.00	1	6
SYRACUSE	120,000	133	13.10	22	16.5	15.00	....	1
Baldwinsville	3,040	2	8.00	0	.....	.....	....	....
De Witt	5,182	5	12.90	1	20.0	.....	....	....
Cortland	8,600	13	18.00	1	7.7	.....	....	....
Homer	3,000	2	8.00	0	.....	.....	....	....
Oneida	6,100	6	12.00	0	.....	167.00	....	....
Hamilton	4,110	8	23.00	0	.....	.....	....	....
Cazenovia	3,803	7	23.15	2	28.5	285.00	....	1
Brookfield	3,235	.....	.....	.....	.....	.....	....	....
Norwich	6,000	8	16.00	2	25.0	.....	....	....
Oneonta	8,000	9	13.25	1	11.1	.....	....	....
Worcester	2,670	2	9.00	0	.....	500.00	....	1
Cooperstown	3,000	4	16.00	0	.....	.....	....	....
Walton	4,811	6	.....	0	.....	.....	....	....
Delhi	3,900	3	12.00	1	33.3	.....	....	....
Liberty	3,500	7	24.00	1	14.2	.....	....	....
Rest of district	230,000	249	13.00	27	10.6	46.25	1	2
WEST CENTRAL DISTRICT Totals	314,000	343	13.80	44	12.7	62.00	7	3
AUBURN	30,000	44	17.30	7	16.0	136.50	1	....
ITHACA	13,460	16	14.25	4	25.0	.....	....	....
Hector	4,332	2	22.35	0	.....	.....	....	....
Waterloo	4,350	4	11.90	0	.....	250.00	....	....
Seneca Falls	6,500	6	11.00	1	16.7	.....	....	....
GENEVA	10,000	8	10.00	3	37.5	.....	....	....
Canandaigua	5,866	4	8.20	1	25.0	.....	....	....
Manchester	4,181	6	17.50	0	.....	.....	....	....
Phelps	5,150	6	16.00	0	.....	.....	....	....
Penn Yan	4,800	7	17.50	2	28.5	.....	....	....
Batavia	7,221	16	25.00	2	12.5	62.50	....	1
Dansville	3,758	6	19.00	1	16.7	.....	....	....
Le Roy	3,000	5	20.00	1	20.0	200.00	....	....
Warsaw	4,700	5	12.75	1	20.0	200.00	1	....
Rest of district	212,000	261	11.15	21	10.0	60.00	5	2
LAKE ONTARIO AND WESTERN DISTRICT Totals	875,000	884	12.00	156	17.6	67.50	6	11
BUFFALO	360,000	359	11.71	82	23.2	53.65	2	4
TONAWANDA	9,000	3	.....	2	.....	.....	....	....
Amherst	4,000	5	15.00	1	20.0	200.00	....	....

FOR FEBRUARY—(*Continued*)

Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	...	....	....	....	....	....	.....	....	....	.....	.....	.....	1	....	....	1	1
....	....	....	....	....	....	....	2	3	2	....	3	1	.....	1	1	1	2	1
....	....	....	....	....	....	....	....	2	.....	....	.....	1	.....	1	...	...	1	1
....	....	1	1	....	....	1	....	5	1	....	.....	....	.....	1	1	....	1	1
....	....	....	....	....	....	....	....	2	1	....	1	....	2	.....	....	2	2	2
....	....	....	....	....	....	....	....	1	.....	....	2	1	1	4	....	1	....	2
....	....	....	....	....	....	....	1	1	.....	....	1	....	.....	.....	....	....	....	2
....	....	....	....	....	....	....	....	2	.....	....	1	....	1	1	....	....	....	2
...	....	....	....	....	....	....	....	6	1	....	4	4	2	3	....	1	1	.....
....	....	....	....	....	....	....	....	.....	.....	....	.....	2	.....	.....	....	....	2	.....
....	....	....	....	....	....	....	....	1	2	....	.....	....	.....	1	1	....	1	2
....	....	2	....	....	1	2	1	78	18	1	30	19	46	42	18	10	59	31
....	....	3	....	....	2	4	1	117	43	3	46	29	85	82	20	16	68	50
....	....	2	....	....	....	4	....	36	22	1	11	11	10	18	3	7	11	15
....	....	....	....	....	....	....	....	1	....	....	.....	....	.....	.....	....	....	....	.....
....	....	....	....	....	....	....	....	.....	.....	....	1	....	.....	1	....	....	....	.....
....	....	....	....	....	....	....	....	7	2	....	2	....	1	2	1	....	1	.....
....	....	....	....	....	....	....	....	1	.....	....	1	....	.....	1	1	....	2	.....
....	....	....	....	....	1	....	....	3	.....	....	1	....	1	2	....	....	....	.....
....	....	....	....	....	....	....	....	1	.....	....	.....	....	1	1	....	1	2	.....
....	....	....	....	....	....	....	....	1	1	....	.....	....	.....	.....	...	....	....	.....
....	....	....	....	....	....	....	....	3	.....	....	1	....	1	.....	....	....	....	.....
....	....	....	....	....	....	....	....	.....	.....	....	.....	....	2	2	1	....	....	.....
....	....	....	....	....	....	....	....	9	1	....	.....	1	.....	1	1	....	....	5
....	....	....	....	....	....	....	....	.....	.....	....	.....	....	3	3	....	....	1	2
....	....	....	....	....	....	....	....	.....	.....	....	.....	....	1	3	....	2	....	.....
....	....	....	....	....	....	....	....	1	.....	....	.....	....	2	.....	....	2	1	.....
....	....	....	....	....	....	....	....	.....	.....	....	.....	1	1	2	1	....	....	.....
....	....	....	....	....	....	....	....	3	2	....	.....	....	1	.....	1	....	....	1
....	....	1	....	....	1	....	1	51	15	2	29	16	61	45	11	6	48	27
....	....	5	....	2	1	3	2	119	41	4	26	20	71	66	29	15	70	46
....	....	....	....	....	....	1	2	8	1	1	1	3	7	4	6	....	3	4
....	....	....	....	....	....	....	....	.....	6	....	.....	....	2	3	1	....	....	2
....	....	....	....	....	....	....	....	.....	.....	....	.....	....	.....	1	....	1	....	.....
....	....	....	....	....	....	....	....	2	.....	....	.....	....	1	2	....	....	3	1
....	....	....	....	....	....	....	....	2	2	....	1	1	3	.....	....	....	....	2
....	....	1	....	....	....	....	....	1	.....	1	2	1	3	3	....	....	1	1
....	....	....	....	....	....	....	....	3	.....	....	.....	....	2	1	1	....	....	.....
....	....	....	....	....	....	....	....	3	1	....	.....	....	3	.....	....	....	1	.....
....	....	....	....	....	....	....	....	1	1	....	.....	....	.....	2	1	1	....	1
....	....	....	....	....	....	....	....	4	1	....	1	2	1	3	1	1	....	2
....	....	....	....	....	....	....	....	4	.....	....	2	2	.....	1	2	1	....	1
....	....	....	....	....	....	....	....	.....	1	....	1	1	.....	2	....	....	....	.....
....	....	....	....	....	....	....	....	.....	.....	....	1	....	.....	.....	....	....	....	2
....	....	....	....	....	....	....	....	2	.....	1	1	....	2	.....	1	....	....	1
....	....	4	....	2	1	2	....	89	28	1	16	12	47	44	16	10	62	28
1	....	7	....	5	7	21	9	246	110	9	55	71	120	164	28	49	87	114
....	....	3	....	2	4	15	5	80	46	4	13	16	43	66	9	25	18	47
....	....	....	....	....	....	....	....	1	1	....	1	....	1	1	1	....	....	2
....	....	....	....	....	....	....	....	2	1	....	.....	....	.....	.....	....	....	1	.....

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
LAKE ONTARIO AND WESTERN DISTRICT—(*Continued*)								
North Tonawanda	9,000	13	17.30	4	30.0	150.00	....	2
Lockport	16,088	23	17.25	3	13.5	.....	....	....
Niagara Falls	16,900	39	25.00	9	27.0	100.00	....	4
Medina	4,500	4	12.00	0	.....	.....	....	....
Albion	4,535	7	18.50	0	.....	.....	....	....
Brockport	3,742	.....	.....	.....	.....	.....	....	....
Rochester	175,000	196	14.60	42	21.0	70.00	....	3
Palmyra	4,173	10	30.00	1	10.0	.....	....	....
Newark	4,600	13	30.00	3	23.0	.....	....	....
Lyons	6,127	10	20.00	0	.....	200.00	....	....
Clyde	3,000	10	.....	1	10.0	.....	....	....
Oswego	22,000	32	17.50	10	31.0	31.00	....	1
Fulton	4,214	9	25.00	0	.....	111.10	....	1
Richland	3,637	3	10.00	1	33.0	.....	....	....
Rest of district	231,000	333	17.70	45	13.0	26.50	....	2
Totals for the state	7,110,000	10,763	19.79	2,506	23.5	70.00	45	116
Totals for January, 1899	.....	12,421	21.00	2,590	21.0	65.00	52	111
Totals for February, 1898	.....	9,213	17.60	2,543	27.5	91.50	53	104

REMARKS—There has been a reduction in the mortality from the average daily rate of 400 in the corresponding month of last year there were 1,500 more deaths than then reported, the of deaths under five years of age, and from zymotic diseases, puerperal diseases, cancer and circulatory, digestive and urinary systems, from old age and unclassified diseases. This in- epidemic of grippe, and that the epidemic reached its acme in January and is now declining. probably caused, directly or indirectly, about 2,000 deaths this month. From pneumonia, last February. Other local diseases have caused 130 deaths daily in the last two months. ago; there were likewise 200 more deaths from unclassified causes. The decrease in mor- highest; in the maritime district the death rate is higher than in January, while in the rest caused the same mortality as in January, causing nearly one-fourth of all deaths. Zymotic of any of them from January, nor is there difference from the mortality of a year ago. One has been no recent report of new cases—a few cases continue at Le Roy and vicinity in troupe was detected a month ago from which no subsequent cases have yet been reported. below the normal (25.5°) mean relative humidity of 77%, moderate southerly and westerly

FOR FEBRUARY—(*Concluded*)

Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	1	....	3	1	1	1	....	.....	1	....	1	....	3
....	....	....	....	....	....	....	....	5	3	...	1	2	3	4	1	2	1	1
....	....	....	....	....	....	....	....	10	.....	1	1	3	3	6	1	5	1	4
....	....	....	....	....	....	....	....	.....	.....	....	1	1	.....	1	....	1	....	.....
....	....	....	....	....	....	....	....	3	.....	....	.....	2	.....	1	1	....	....	.....
....	....	....	....	....	....	....	....	.....	.....	....	.....	.....	.....	.....	....	....	....	.....
1	....	2	....	1	....	3	4	32	27	1	10	16	23	25	7	2	11	21
....	....	....	....	....	....	....	....	1	1	....	1	....	2	1	....	....	3	1
....	....	....	....	....	....	....	....	4	1	....	2	....	1	2	....	1	2	.....
....	....	2	....	....	....	....	....	.....	.....	....	.....	3	.....	.....	....	2	3	.....
....	....	....	....	....	....	....	....	4	1	....	.....	1	.....	2	....	....	2	.....
....	....	....	....	....	....	....	....	4	1	....	1	4	5	7	....	2	2	5
....	....	....	....	....	....	....	....	1	2	....	.....	....	4	1	....	....	....	.....
....	....	....	....	....	....	....	....	1	.....	....	.....	....	.....	.....	....	....	1	1
....	....	....	....	2	3	2	....	86	25	2	23	23	35	46	8	8	42	29
20	1	87	37	36	76	236	101	2,329	1,204	64	651	765	1,045	1,200	320	412	710	1,308
19	1	71	51	43	77	255	127	2,965	1,304	76	735	818	1,116	1,386	351	400	917	1,553
23	....	93	84	33	47	275	119	1,738	1,031	75	673	754	763	1,123	309	337	483	1,098

January to 885, and from a death rate of 21.00 per 1,000 population to 19.75. Compared with death rate being 17.60. In each of these three months there was practically the same number violence; the variations are in acute respiratory diseases, consumption, and diseases of the di ates that the disturbance from the normal in mortality is due to the continuance of the 1,800 deaths were estimated to have been caused by it in December, 3,000 in January; it a id other acute diseases of the lungs, there were 88 deaths da ly against 76 in January and 68 against 120 last February. There were 700 deaths from old age which is 200 more than a year tality from last month has been in the rural parts of the state, whereas in January it was the o' the districts it is much decreased. In the city of New York acute respiratory diseases d seases caused 7.0 per cent of the deaths of the state. There is no change in the prevalence death is reported from smallpox from New York city; in the western part of the state there Genesee county, and at Penfield, Monroe county, one case coming with a traveling concert There was a slight deficiency in the precipitation during the month, a mean temperature 2.5° winds prevailing.

MONTHLY BULLETIN OF THE NEW

Abstract of reports of deaths and causes in the following

[Cities are printed in SMALL CAPS, villages

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
MARITIME DISTRICT Totals	3,896,000	6,108	19.00	1,914	31.5	85.00	53	22
CITY OF NEW YORK Totals	3,550,053	5,671	18.85	1,823	32.5	84.00	50	21
BOROUGH OF MANHATTAN	1,953,569	3,232	19.50	1,065	32.8	83.56	30	12
BOROUGH OF THE BRONX	168,537	302	21.70	96	35.0	120.60	6	2
BOROUGH OF BROOKLYN	1,231,548	1,840	18.00	585	32.5	78.00	12	6
BOROUGH OF QUEENS	134,139	221	17.70	70	35.0	50.00	....	....
BOROUGH OF RICHMOND	67,260	96	17.00	12	12 5	106.00	1	1
Oyster Bay	15,000	15	15.00	1	6.7	.....	....	....
Hempstead	24,000	34	17.00	7	30.4	99.00	....	....
North Hempstead	8,736	9	13.00	5	55.0	110.00	....	....
Southold	7,671	8	13.00	1	12.5	... .	....	....
Sag Harbor	3,000	4	16.00	0	.....	.....	....	....
Huntington	8,253	10	15.00	2	20.0	.....	...	....
Brookhaven	13,500	12	12.00	1	8.5	.....	....	....
YONKERS	42,000	55	23.72	23	25.5	85.00	....	....
Greenburgh	12,000	24	24.00	4	20.6	50.00	1	....
MOUNT VERNON	15,513	17	14.00	4	24 0	60.00	....	....
Port Chester	7,547	13	21.00	4	24.0	.....	....	....
Sing Sing	9,560	15	19.00	3	20.0	.....	....	....
NEW ROCHELLE	8,217	17	24.00	5	30.0	60.00	....	....
Peekskill	10,000	18	21.80	6	33.3	165.00	....	....
White Plains	4,642	10	25.00	4	40.0	200.00	....	....
Rest of district	95,080	146	18.25	18	12.5	80.00	2	1
HUDSON VALLEY DISTRICT Totals	700,000	1,163	19.50	228	17.0	88.00	6	43
ALBANY	100,000	213	25.50	61	28.0	126.50	2	14
COHOES	25,000	48	23.00	11	30.0	42.50	....	....
TROY	65,000	111	20.50	21	19.0	120.00	1	9
WATERVLIET	14,900	27	23.00	5	18.5	145.00	....	1
Green Island	4,500	11	.....	1	.....	.....	1	....
Lansingburg	12,000	21	21.00	3	15.0	150.00	....	3
Hoosick Falls	7,401	10	.....	2	.....	.....	1	....
RENSSELAER	8,000	13	19.00	3	23.0	230.50	....	2
Coxsackie	3,824	5	15.50	2	40.0	200.00	....	1
Catskill	5,000	12	30.00	3	25.0	83.50	....	1
HUDSON	9,633	26	25.00	4	16.0	280.00	....	5
KINGSTON	25,000	50	24.50	13	26.0	140.00	1	1
Ellenville	2,000	2	8.00	0	.....	.....	....	....
Marbletown	3,689	9	25.00	1	11.0	110.00	....	....
Rosendale	6,125	13	24.00	3	23.0	75.00	....	....
Esopus	5,035	5	12.00	2	40.0	.....	....	....
Saugerties	4,237	6	13.00	2	33.0	.....	....	....
POUGHKEEPSIE	25,000	54	26.00	8	15.0	20.00	....	....
Fishkill	12,000	13	13.00	2	15 0	150.00	....	....
Wappinger Falls	3,188	.....	.....	.....	.....	.....	....	....
NEWBURGH	26,000	36	17.50	8	22.0	85.00	....	....
Port Jervis	9,327	20	24.00	4	20.0	.....	....	....
MIDDLETOWN	12,000	13	13.00	2	16.5	.....	....	....
Warwick	6,000	8	16.00	2	25.0	.....	....	....
Goshen	4,946	5	13.00	1	20.0	.....	....	....

YORK STATE BOARD OF HEALTH

districts, cities, villages and towns during March, 1899

In *italics* and towns in Roman type]

Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
8	1	79	59	24	44	158	57	1,199	823	52	331	511	396	616	205	260	147	908
6	1	75	59	23	41	147	51	1,112	786	50	348	475	449	559	192	242	120	864
1	....	49	23	18	25	77	36	653	437	43	188	264	241	295	103	166	60	512
1	1	3	1	....	3	22	....	37	77	1	20	24	23	23	9	11	11	39
1	....	20	36	3	13	40	13	345	245	5	122	162	171	211	70	52	40	272
3	....	2	....	....	....	3	2	65	18	1	13	15	13	19	8	8	6	25
....	....	1	....	2	....	5	....	12	9	....	5	11	11	11	2	5	3	16
....	....	....	....	....	....	....	....	10	....	....	1	....	2	....	2	....	....	....
....	....	1	....	....	....	1	1	5	3	1	4	5	2	4	....	1	2	4
....	....	....	....	....	....	....	1	1	1	....	....	....	2	1	1	1	....	1
....	....	....	....	....	....	....	....	....	....	....	....	1	1	2	1	....	2	1
....	....	....	....	....	....	....	....	1	1	....	....	1	....	....	....	....	1	....
....	....	....	....	....	....	....	....	....	1	....	....	2	2	1	....	....	2	2
....	....	....	....	....	....	....	....	2	2	....	....	1	1	3	....	....	3	....
1	....	3	....	....	....	2	1	30	....	....	5	6	4	9	3	3	1	19
....	....	....	....	....	....	1	....	3	2	....	1	1	3	6	....	3	2	1
....	....	....	....	....	1	....	....	2	2	....	3	2	2	4	....	....	....	1
....	....	....	....	....	....	....	....	1	2	....	1	1	2	1	....	....	2	3
....	....	....	....	....	....	....	....	5	....	....	1	2	2	2	....	2	....	1
....	....	....	....	....	1	....	....	3	....	....	1	3	3	2	2	....	1	1
....	....	....	....	....	....	3	....	4	2	....	2	....	1	3	1	....	....	2
....	....	....	....	1	....	1	....	1	....	....	1	....	2	....	....	....	2	2
1	....	.	....	....	1	3	3	19	26	1	13	11	18	19	3	3	9	13
2	....	1	....	2	7	14	27	220	135	7	72	79	126	161	39	33	74	126
....	....	....	....	1	....	2	3	38	34	2	12	17	14	16	11	6	9	27
....	....	....	....	....	2	....	....	17	6	....	1	4	1	6	....	4	1	6
....	....	....	....	....	....	....	2	26	16	....	6	6	15	10	3	....	4	12
....	....	....	....	....	....	1	2	7	1	..	.....	3	6	.....	1	1	2	2
....	....	....	....	....	....	2	....	4	....	....	....	....	....	1	....	....	2	1
....	....	....	....	....	2	....	....	5	1	...	2	1	.....	3	2	....	2	2
....	....	....	....	....	....	....	....	2	3	....	....	....	....	....	....	1	2	1
....	....	....	....	....	....	....	1	1	....	....	3	1	.....	3	....	....	....	2
....	....	....	....	....	....	....	....	2	....	....	....	1	1	....	....	....	....	....
....	....	....	....	....	....	....	....	2	1	....	1	1	1	2	....	1	....	2
....	....	....	....	....	....	....	2	1	....	....	6	2	3	3	1	1	2	....
1	....	....	....	....	....	2	2	13	2	1	5	3	5	5	2	2	2	3
....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	1
....	....	....	....	....	1	....	....	3	....	....	....	...	1	2	....	....	1	....
....	....	....	....	....	....	....	1	4	1	....	1	....	1	2	1	....	1	1
....	....	....	....	....	....	....	....	2	....	....	....	....	....	1	....	....	....	2
....	....	....	....	....	....	....	....	2	1	....	....	1	....	1	....	....	....	1
....	....	....	....	....	....	....	5	5	6	3	6	6	9	6	3	2	2	27
....	....	....	....	....	....	....	1	2	4	....	.....	....	1	1	....	....	1	
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.....
....	....	1	....	....	....	2	....	3	4	....	1	5	5	4	1	....	5	5
....	....	....	....	....	....	....	1	2	2	....	1	2	1	9	....	1	....	1
....	....	....	....	....	....	....	....	2	2	....	1	....	.....	6	....	....	1	1
....	....	....	....	....	....	....	....	.....	.....	....	1	...	1	2	....	1	1	2
....	....	.....	.....	....	....	.....	.....	.....	1	.....	.....	1	.....	1	.....	.....	1	1

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
HUDSON VALLEY DIST.—(*Con.*)								
Montgomery	5,259	9	21.00	1	11.0	.....	....	....
Haverstraw	7,714	5	.....	2	40.0	.....	....	....
Nyack	5,603	4	10.00	0	.....	.....	....	....
Ramapo	6,600	9	16.50	1	11.0	110.00	....	....
Rest of district	275,000	404	17.60	70	17.5	48.50	1	5
ADIRONDACK AND NORTHERN DISTRICT Totals	320,000	494	15.00	86	17.5	70.00	4	10
WATERTOWN	17,000	29	20.50	7	24.0	67.00	....	....
Ellisburgh	4,223	5	15.00	0	.....	200.00	....	....
Cape Vincent	3,000	5	20.00	0	.....	.....	....	....
Clayton	4,250	6	17.50	2	33.0	.....	....	....
OGDENSBURG	12,000	21	21.00	6	30.0	150.00	1	1
Gouverneur	6,000	4	10.00	0	.....	.....	....	....
Potsdam	4,000	11	30.00	2	20.0	250.00	....	....
Canton	6,013	15	30.00	1	7.0	.....	....	....
Malone	5,000	9	21.60	5	55.5	.....	....	....
Plattsburg	8,400	16	22.50	1	6.5	125.00	....	1
Glens Falls	12,500	17	16.00	1	7.5	.....	....	....
Whitehall	4,500	2	.....	0	.....	.....	....	1
Fort Edward	4,382	11	25.00	3	27.5	.....	....	....
Kingsbury	5,112	10	25.00	2	20.0	.....	....	....
Granville	5,261	10	20.50	2	20.0	100.00	1	....
Greenwich	4,500	8	.....	0	.....	.....	....	1
Lowville	4,000	1	.....	0	.....	.....	....	....
Rest of district	280,000	319	13.50	54	13.0	70.00	2	6
MOHAWK VALLEY DISTRICT Totals	395,000	575	17.00	88	15.5	63.50	4	10
SCHENECTADY	23,791	46	19.50	10	21.5	45.50	....	....
Cobleskill	3,446	10	.....	1	.....	.....	....	1
AMSTERDAM	20,000	23	14.00	3	13.0	40.00	....	....
Fort Plain	3,000	9	39.00	0	.....	.....	....	....
JOHNSTOWN	7,768	7	.....	1	.....	.....	....	....
GLOVERSVILLE	15,000	23	18.50	5	22.0	135.00	2	....
LITTLE FALLS	12,000	22	22.00	3	13.5	135.00	....	1
Herkimer	5,150	10	23.50	2	20.0	200.00	....	1
Ilion	4,067	4	12.00	0	.....	.....	....	....
UTICA	55,000	82	17.00	15	17.5	50.00	1	....
Whitestown	5,225	2	.....	.....	.....	.....	....	....
ROME	14,000	19	16.00	0	.....	.....	....	....
Boonville	3,512	3	11.00	0	.....	.....	....	....
Camden	3,675	11	30.00	1	9.0	180.00	....	1
Waterford	5,522	15	33.50	5	33.3	260.00	....	2
Mechanicville	3,000	.....	.....	.....	.....	.....	....	....
Ballston Spa	3,527	3	11.00	2	66.0	.....	....	....
Saratoga Springs	12,500	23	21.00	5	21.5	40.00	1	....
Rest of district	193,000	264	16.50	35	13.5	50.00	....	4
SOUTHERN TIER DISTRICT Totals	495,000	694	15.75	91	15.5	65.00	5	10
BINGHAMTON	45,000	61	16.25	9	15.0	100.00	2	3
Owego	6,009	4	8.00	0	.....	.....	....	....
Candor	3,525	5	17.25	1	20.0	.....	....	....
Waverly	4,122	10	25.00	2	20.0	.....	....	....
ELMIRA	35,000	55	19.00	14	26.5	29.00	....	1

FOR MARCH—(*Continued*)

Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	....	.....	1	....	1	2	2	.....	....	1	....	2
....	..	....	....	....	....	....	....	1	.....	....	2	...	.....	1	....	....	....	.....
....	....	....	....	....	....	....	....	.....	.....	....	.....	3	.....	1	....	....	....	.....
....	....	....	....	....	....	1	....	.....	2	....	.....	2	3	.....	....	1	....	.....
1	....	....	....	1	2	4	5	76	37	1	21	20	55	73	14	11	35	41
....	....	2	....	3	2	6	8	93	47	5	39	27	54	55	23	10	59	47
....	....	....	....	1	....	....	1	4	2	1	4	....	6	2	3	1	1	3
....	....	....	....	....	....	....	1	1	.....	....	.....	1	.....	1	....	....	1	.....
....	....	....	....	....	....	....	....	1	.....	....	.....	1	.....	.....	2	....	1	.....
....	....	....	....	....	....	....	....	2	.....	....	.....	....	.....	1	....	....	....	2
....	....	....	....	....	....	....	1	3	3	1	2	2	1	3	1	....	....	2
....	....	....	....	....	....	....	....	.....	1	....	....	....	.....	.....	....	....	3	.....
....	....	....	....	....	....	2	1	2	1	....	.....	....	2	.....	1	1	1	1
....	....	....	....	....	....	....	....	6	.....	....	.....	1	3	.....	1	....	3	1
....	....	....	....	....	....	....	....	1	.....	....	.....	....	1	2	....	....	....	2
....	....	....	....	....	....	....	1	2	1	1	1	....	1	2	....	....	2	2
....	....	....	....	....	....	....	....	2	2	....	3	....	4	1	1	....	1	2
....	....	....	....	....	....	....	....	.....	1	....	.....	....	.....	.....	....	....	....	.....
....	....	....	....	....	....	....	....	2	3	....	2	1	2	.....	....	....	1	.....
....	....	....	....	....	....	....	....	2	3	....	.....	....	.....	1	....	....	2	2
....	....	....	....	....	....	....	....	2	1	....	.....	....	.....	.....	3	....	1	.....
....	....	....	....	....	....	....	....	1	1	....	.....	....	.....	.....	....	....	....	.....
....	....	....	....	....	....	....	....	.....	1	....	.....	....	.....	.....	....	....	....	.....
....	....	2	....	2	2	4	3	61	27	2	27	19	34	42	12	8	41	25
....	....	1	...	3	9	7	9	105	50	3	38	50	58	76	20	24	63	52
....	....	....	....	....	2	....	....	11	3	1	2	6	2	6	2	....	4	7
....	....	....	....	....	....	....	....	2	1	....	.....	....	.....	3	1	1	1	.....
....	....	....	....	1	....	....	....	1	6	....	2	1	2	1	....	....	3	5
....	....	....	....	....	....	....	....	1	1	....	.....	....	1	2	1	1	....	2
....	....	....	....	....	....	....	....	.....	2	....	1	1	.....	.....	1	....	1	1
....	....	....	....	....	1	....	....	4	1	....	1	3	2	4	....	....	2	3
....	....	....	....	....	2	....	....	1	3	....	2	1	3	3	1	3	1	2
....	....	....	....	....	....	1	....	2	1	....	.....	....	1	2	2	....	....	.....
....	....	....	....	....	....	....	....	.....	.....	....	.....	1	.....	1	1	....	1	.....
....	....	1	....	....	....	2	..	11	10	....	7	10	7	14	3	4	6	6
....	....	....	....	....	....	....	....	.....	1	....	.....	....	.....	....	....	1	....	.....
....	....	....	....	....	....	....	....	3	5	....	1	....	2	4	....	2	2	.....
....	....	....	....	....	....	....	....	1	.....	....	.....	....	.....	.....	....	....	2	.....
....	....	....	....	....	1	....	....	2	1	....	.....	1	3	.....	1	1	....	.....
....	....	....	....	....	....	2	....	2	2	....	1	1	1	2	1	....	1	.....
....	....	....	....	....	....	....	....	.....	..	....	.....	....	.....	.....	....	....	....	.....
....	....	....	....	....	....	....	....	2	.....	....	.....	....	.....	1	....	....	....	.....
....	....	....	....	2	3	2	2	57	13	2	20	22	35	31	6	10	38	19
....	....	3	2	....	1	11	5	117	44	5	50	40	53	75	31	17	56	50
....	....	....	....	....	....	....	1	9	7	2	6	5	8	10	2	....	4	2
....	....	....	....	....	....	....	....	2	.....	....	.....	....	.....	1	....	....	1	.....
....	....	....	....	....	....	....	....	2	1	....	.....	....	.....	1	1	....	....	.....
....	....	....	....	....	....	....	....	4	.....	....	.....	1	2	1	....	1	....	1
....	....	....	....	....	....	....	....	17	4	....	3	6	3	5	4	2	3	7

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
SOUTHERN TIER DIST.—(*Con.*)								
Horseheads	3,319	1	.....	0	.....	.....	....	....
HORNELLSVILLE	12,000	18	18.00	3	16.7	166.70	....	2
Bath	3,261	3	12.00	0	.....	.....	....	....
CORNING	10,025	10	.....	1	.....	.....	....	....
Wellsville	5,033	4	10.00	0	.....	.....	....	....
OLEAN	10,000	9	.....	4	.....	.....	....	....
Salamanca	3,700	2	.....	1	.....	.....	....	....
DUNKIRK	13,200	16	15.00	4	25.0	125.00	....	....
JAMESTOWN	18,627	30	19.00	4	13.2	.....	....	....
Westfield	3,000	3	12.00	1	33.3	330.00	....	....
Fredonia	3,400	11	30.00	2	16.7	82.50	....	....
Rest of district	250,000	342	15.00	43	13.0	60.00	3	4
EAST CENTRAL DISTRICT Totals	415,000	533	15.00	74	14.0	35.00	2	6
SYRACUSE	120,000	120	12.00	23	19.2	60.00	1	2
Baldwinsville	3,040	4	16.00	1	25.0	.....	....	....
De Witt	5,182	12	28.00	0	.....	.....	....	....
Cortland	8,600	4	.....	0	.....	.....	....	....
Homer	3,000	5	20.00	1	20.0	.....	....	....
Oneida	6,100	6	12.00	0	.....	165.60	....	1
Hamilton	4,110	4	12.00	1	25.0	.....	....	....
Cazenovia	3,803	.....	.....	.....	.....	.....	....	....
Brookfield	3,235	4	15.00	0	.....	.....	....	....
Norwich	6,000	11	23.00	1	9.1	92.00	....	....
Oneonta	8,000	10	15.00	5	50.0	.....	....	....
Worcester	2,670	7	30 00	0	.....	.....	....	....
Cooperstown	3,080	4	16.00	0	.....	.....	....	....
Walton	4,811	7	20.00	1	14.2	.....	....	....
Delhi	3,000	8	30.00	0	.....	.....	....	....
Liberty	3,500	11	30.00	0	.....	.....	....	....
Rest of district	230,000	316	16.00	42	13.0	25.00	1	2
WEST CENTRAL DISTRICT Totals	314,000	502	19.00	56	11.5	50.00	3	5
AUBURN	25,000	57	23.00	14	25.0	37.50	....	....
ITHACA	13,460	19	17.00	1	5.2	105.00	1	1
Hector	4,832	3	10.00	1	33.0	.....	....	....
Waterloo	4,350	8	22.75	0	.....	.....	....	....
Seneca Falls	6,500	15	27.50	0	.....	.....	....	....
GENEVA	10,000	18	21.60	3	16.5	55.00	....	....
Canandaigua	5,868	5	10.00	1	20.0	200.00	....	....
Manchester	4,181	6	18.00	0	.....	.....	....	....
Phelps	5,150	11	24.00	2	19.2	.....	....	....
Penn Yan	4,500	9	22.00	0	.....	.....	....	....
Batavia	7,221	12	20.00	3	25.0	.....	....	....
Dansville	3,758	6	20.00	1	16.7	167.00	...	1
Le Roy	3,000	6	24.00	1	16.7	.....	....	....
Warsaw	4,700	7	23.50	2	28.5	.....	....	....
Rest of district	212,000	320	18.20	27	8.5	60.00	2	3
LAKE ONTARIO AND WESTERN DISTRICT Totals	875,000	1,107	15.25	261	23.5	70.00	5	15
BUFFALO	360,000	394	13.15	144	36.5	107.50	1	7
TONAWANDA	9,000	11	15.00	3	27.3	.....	....	....
Amherst	4,000	5	15.00	3	60.0	.....	....	....

FOR MARCH—(*Continued*)

Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
												1						
		1						5				1	1		2	2	1	3
						1		1	3		2		1	1	1		1	1
								1	1		1	1						
						1		1	1		2			2				2
											1							1
						1	1	4	1		2	1			2	1	1	2
									7		3		2	2	1	3	2	5
						1		1										1
						1		2	1	1	1		2	2			1	
		2	2		1	6	3	68	18	2	24	24	34	49	18	8	42	34
1				1		2	5	97	48	4	38	37	79	71	28	16	52	46
1				1		1	1	15	18		9	8	15	15	8	5	3	17
												2					1	1
								5	2		1		4	2			1	
								1										
								1				1		2	1	1	1	1
												1					2	
												1	1				1	1
									1			1		1			1	
							1	1			1		2		2	1	2	1
								3				1		3	1	1		1
								1	1		2		3					
								1					2					
								2	1		1	1	1	1			1	
								3	1			1	2				1	
						1	3	60	22	4	24	23	47	46	15	8	36	23
1		3		1	1	8	4	93	39		23	26	77	74	21	23	56	42
						1	1	8	2		5	2	9	8	5	4	3	9
								3	2			3		4			3	2
								1						1			1	
									2			1	2	2			1	
						1		1	4		1	1	1	3	1	2	1	
							1	3					2	1	1		3	6
														1				
								1				1	1	1			1	1
								1	2		1	3	1	1				2
								1	1			2	1	2	1		1	
								5	1			1		1			1	2
											1		3	1				
								1				1				1	2	1
									2					1		1	1	1
1		3		1	1	6	2	68	19		14	13	56	47	13	15	38	18
		9		6	9	14	18	221	108	5	85	66	110	162	51	86	81	111
		6		3	6	6	12	75	33	1	21	25	27	60	13	15	23	55
								2	1		1	1		2	1		1	2
								2						1				2

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
LAKE ONTARIO AND WESTERN DISTRICT—*(Continued)*								
NORTH TONAWANDA	9,000	6	.....	2	33.0	.....	....	....
LOCKPORT	16,066	27	20.30	2	7.0	.....	....	....
NIAGARA FALLS	16,000	21	15.75	5	24 5	150.00	....	3
Medina	4,500	13	30.00	0	.....	.....	....	1
Albion	4,536	2	.....	1	50.0	.....	....	...
Brockport	3,742	12	.....	0	.....	.....	...	....
ROCHESTER	175,000	206	14.10	22	11.0	78.00	....	2
Palmyra	4,173	8	23.00	1	12.5	.....	....	....
Newark	4,600	8	20.00	1	12.5	.....	....	....
Lyons	6,127	11	22.00	2	19.0	... .	...	....
Clyde	3,000	4	16.00	1	25.0	.....	....	....
OSWEGO	22,000	31	17.00	8	36.0	45.00	1	....
Fulton	4,214	8	23 00	0	.....	.....	....	....
Richland	3.637	4	18.50	0	.....	.....	..	....
Rest of district	231,000	336	18.00	66	20.0	40.00	3	2
Totals for the state	7,110,000	11,065	19.00	2,807	25.5	75.00	82	121
Totals for February, 1899	.....	10,763	19.70	2,506	23.5	70.00	45	116
Totals for March, 1898	.....	10,300	18.25	2,860	28.0	96.25	73	119

REMARKS—There was an average daily mortality during March of 357, a reduction from 385 February and 21.00 in January. Compared with the corresponding month of last year there March 1898 by over 100 deaths; acute respiratory diseases caused 100 more deaths, con- than in March 1898. Compared with last month there is increase in the zymotic mortality in mortality are those of grippe, and the indications are that it caused about double the about 1300. The infant mortality has increased from 23.5 per cent of all deaths to 25.5, and 7.5 per cent of all deaths. Cerebro-spinal meningitis caused 82 deaths, of which 53 occurred is true of the diarrheal diseases which caused 125 deaths. Diphtheria is reduced to 230 deaths, but 1.2 per cent in the rest of the state. Typhoid fever caused 121 deaths, about one per cent caused 79 deaths in the maritime district and 20 in the rest of the state. Of local diseases, and relatively the same in all parts of the state, the rural towns having as large a proportion there is no variation from the mortality of last month or of last March, 11.7 per cent of the greatest in the rural towns, 13.0 per cent of all the mortality, against 8.0 per cent in the state except at Tonawanda, two cases, Elmira, three cases and one at Kingston, all probably normal, excessive precipitation with few clear days, and high relative humidity, winds being

FOR MARCH—(*Concluded*)

Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	...	....	.....	....	...	....	1	1	1	.....	....	.....	1	....	1	....	1
....	....	....	....	....	....	....	...	5	4	....	5	3	2	2	....	...	3	9
....	....	....	....	....	....	....	....	3	.....	....	3	....	.....	4	2	....	3	4
....	....	....	....	....	....	....	....	1	.....	....	2	2	3	3	....	....	1	.....
....	....	....	....	....	....	....	....	.....	.....	....	.....	....	1	1	...	....	....	.....
....	....	...	....	....	....	....	....	1	4	....	1	1	.....	.....	1	1	2	1
....	....	3	....	2	....	6	3	41	25	....	21	16	29	20	11	4	8	15
....	....	....	....	....	....	....	....	2	.....	....	1	....	.....	.....	1	2	2	.....
....	....	....	....	....	....	....	....	2	.....	....	.....	....	2	1	1	....	2	.....
....	....	....	....	....	....	....	....	2	1	....	1	...	.....	3	....	....	3	1
....	....	....	....	...	....	....	...	.....	1	1	1	....	.....	.....	....	....	....	1
....	....	....	....	...	....	....	....	5	2	....	2	2	5	4	....	2	4	4
....	....	....	....	....	....	....	...	1	1	1	.....	....	.....	1	3	1	....	.....
....	....	....	....	....	....	....	....	.....	.....	....	.....	....	1	2	1	....	....	.....
....	....	....	....	1	3	2	3	79	30	1	26	16	40	57	17	10	24	22
12	1	98	61	40	73	220	126	2,145	1,284	81	726	838	1,052	1,290	418	419	588	1,320
20	1	87	37	36	76	236	.01	2,329	1,204	64	651	765	1,045	1,200	320	412	710	1,308
28	....	108	144	24	89	281	123	1,872	1,166	89	718	810	901	1,251	382	430	511	1,186

in February and 400 in January; and a death rate of 19.00 per 1000 population against 19.75 in were 700 more deaths, the death rate then being 18.25. The zymotic mortality is less than in sumption 100, diseases of the circulatory system 150, and old age and unclassified 275 more and decrease in deaths from acute respiratory diseases, cancer and old age. These variations mortality of March 1898, and that it has fallen from a mortality of 2000 in February to one of is the same as that of last March. The zymotic mortality has slightly increased and caused in the maritime district, and has increased, as is customary in the spring months; the same or 2.0 per cent of the total mortality, being highest, 2.6 per cent in the maritime district and of all the deaths; its chief prevalence has been in the Hudson Valley district. Scarlet fever those of the respiratory system have caused the largest mortality, 20.0 per cent of all deaths, of deaths from this cause as the metropolis. In deaths from diseases of the nervous system total. There was increase in the deaths from diseases of the circulatory system, relatively maritime district. Consumption caused 1,284 deaths. Smallpox has disappeared from the originating exterior to the state. The weather of the month was temperature below the high and variable.

MONTHLY BULLETIN OF THE NEW

Abstract of reports of deaths and causes in the following

[Cities are printed in SMALL CAPS, villages

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
MARITIME DISTRICT								
Totals	3,836,060	5,869	18.66	1,866	31.8	89.00	56	98
CITY OF NEW YORK								
Totals	3,550,058	5,475	18.80	1,768	32.2	88.75	54	93
BOROUGH OF MANHATTAN	1,958,599	3,158	19.61	1,066	33.8	91.75	37	15
BOROUGH OF THE BRONX	168,597	262	20.96	76	25.5	96.45	5	....
BOROUGH OF BROOKLYN	1,231,586	1,761	17.61	530	30.5	82.00	10	11
BOROUGH OF QUEENS	134,189	196	18.37	68	34.2	90.00	2	1
BOROUGH OF RICHMOND	67,260	84	15.20	16	19.0	95.00	....	1
Oyster Bay	15,000	11	9.90	3	27.3	191.90	....	....
Hempstead	24,000	23	11.50	4	17.3	43.50	....	....
North Hempstead	8,796	16	21.82	4	25.0	125.00	....	....
Southold	7,671	11	17.29	3	27.3	.....	....	....
Sag Harbor	3,000	8	32.00	2	25.0	.....	....	....
Huntington	8,253	16	23.26	2	12.5	.....	....	....
Brookhaven	13,500	18	16.00	3	16.7	.....	....	....
YONKERS	42,000	48	13.39	13	27.0	62.50	1	....
Greenburgh	12,000	21	21.00	6	28.5	95.00	....	....
MOUNT VERNON	15,513	25	19.34	5	20.0	80.00	....	....
Port Chester	7,547	.....	.....	.....	.....	.....	....	....
Sing Sing	9,500	10	12.65	3	30.0	100.00	....	....
NEW ROCHELLE	10,000	14	16.80	2	14.2	.....	....	....
Peekskill	10,000	16	19.20	6	37.5	250.00	....	....
White Plains	4,048	8	23.75	2	25.0	125.00	....	....
Rest of district	90,009	149	20.50	46	30.0	100.00	1	....
HUDSON VALLEY DISTRICT								
Totals	700,000	1,024	17.65	171	16.5	88.75	8	35
ALBANY	100,000	189	23.00	32	16.8	116.00	....	13
COHOES	25,000	40	19.46	10	25.0	225.00	....	4
TROY	65,000	105	19.65	17	16.2	85.75	2	6
WATERVLIET	14,000	18	15.64	7	39.0	55.85	....	1
Green Island	4,500	3	.....	0	.....	.....	....	....
Lansingburg	12,000	13	13.00	2	15.4	75.00	....	...
Hoosick Falls	7,014	6	10.28	2	33.3	166.67	....	....
RENSSELAER	8,000	14	21.00	4	28.5	214.50	....	2
COXSACKIE	3,824	6	18.83	3	50.0	.....	....	....
Catskill	5,000	13	.....	1	7.7	154.00	....	2
HUDSON	10,000	23	27.60	5	21.5	43.00	....	....
KINGSTON	25,000	29	14.10	6	20.7	69.00	1	1
Ellenville	3,000	4	16.00	1	25.0	.....	....	....
Marbletown	3,589	4	13.00	0	.....	.....	....	....
Rosendale	6,125	14	27.75	2	14.2	214.25	1	1
Esopus	5,025	5	12.00	0	.....	200.00	....	1
Saugerties	4,237	6	17.00	1	16.7	.....	....	....
POUGHKEEPSIE	35,000	43	15.60	6	14.0	98.00	2	1
Fishkill	12,000	22	23.00	6	26.9	.....	....	....
Wappinger Falls	3,718	5	15.00	2	40.0	400.00	1	....
NEWBURGH	36,000	36	12.16	3	8.5	30.00	....	....
Port Jervis	9,237	12	15.45	1	8.5	83.50	....	....
MIDDLETOWN	12,000	17	17.00	2	11.8	.....	....	....
Warwick	6,000	8	.....	2	66.6	.....	....	....
Goshen	4,646	6	15.00	0	.....	.....	....	....

YORK STATE BOARD OF HEALTH

districts, cities, villages and towns during April, 1899

[In *italics* and towns in Roman type]

Zymotic Diseases																		
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
16	1	55	58	32	35	161	78	1,149	754	46	391	528	485	578	168	267	133	905
16	1	55	56	30	29	153	64	1,071	708	45	370	505	395	512	160	248	111	864
5	....	31	27	23	20	32	49	621	392	35	210	272	226	250	105	149	65	538
2	1	2	3	1	....	13	....	40	73	2	15	27	11	24	10	19	5	29
6	....	17	25	6	8	47	14	352	209	6	126	172	141	201	40	68	34	268
2	....	5	....	....	....	8	....	43	19	2	13	22	12	27	5	9	6	20
1	....	....	1	....	1	3	1	15	15	....	6	12	5	10	....	3	1	9
....	....	....	1	....	....	....	1	2	....	....	....	....	3	.....	1	1	1	1
....	....	....	....	....	....	....	1	2	5	....	2	1	2	6	....	1	2	1
....	....	....	1	....	....	....	1	5	.....	....	.....	....	2	2	....	3	1	1
....	....	....	....	....	....	....	....	1	.....	....	....	....	1	3	....	....	3	3
....	....	....	....	....	....	....	....	3	....	....	1	....	.....	3	....	....	....	1
....	....	....	....	....	....	....	....	4	1	....	1	1	1	5	1	....	1	1
....	....	....	....	....	....	....	....	4	5	....	1	....	4	.....	....	1	....	3
....	....	....	....	....	....	1	1	9	10	....	1	5	5	10	....	1	1	3
....	....	....	....	....	2	1	....	2	2	1	1	1	.....	4	1	3	....	3
....	....	....	....	1	1	....	....	3	3	....	3	....	2	1	1	1	3	1
....	....	....	....	....	....	....	....	.....	....	....	.....	....	.....	.....	....	....	....	.....
....	....	....	....	1	....	....	....	1	3	....	1	....	1	.....	....	....	1	2
....	....	....	....	....	....	....	....	2	2	....	1	2	4	.....	....	....	1	2
....	....	....	....	....	....	....	4	1	2	....	1	..	2	2	....	1	....	3
....	....	....	....	....	....	....	1	1	1	....	.....	2	1	2	....	....	....	.....
....	....	....	....	....	3	6	5	33	12	....	3	11	12	23	4	7	3	16
3	....	2	3	1	9	8	16	173	121	11	75	66	123	140	40	40	69	82
....	....	....	....	....	1	3	5	35	16	1	14	13	28	20	7	7	3	18
....	....	....	....	....	3	....	2	5	7	1	2	2	3	4	1	2	2	2
....	....	....	....	....	....	1	....	21	15	1	6	12	6	9	5	6	3	10
....	....	....	....	....	....	....	....	7	1	....	1	....	.....	4	1	....	1	2
....	....	....	....	....	....	....	....	1	.....	....	.....	....	.....	1	....	....	1	.....
....	....	....	....	....	....	1	....	.....	....	....	1	....	2	3	1	....	2	2
....	....	....	....	....	....	....	1	2	1	....	.....	....	.....	.....	....	....	1	1
....	....	....	....	....	....	....	1	1	1	....	2	2	2	1	....	....	1	1
....	....	....	....	....	....	....	....	1	.....	....	.....	....	.....	1	1	....	....	3
....	....	....	....	....	....	....	....	2	1	....	1	2	2	1	1	....	....	1
....	....	....	....	....	....	1	....	4	3	1	3	....	3	6	....	....	1	1
1	....	....	....	....	....	....	....	4	1	....	3	2	6	5	1	..	3	1
....	....	....	....	....	....	....	....	.....	1	....	1	....	2	.....	....	....	....	.....
....	....	....	....	....	....	....	....	2	.....	....	.....	....	2	.....	....	....	....	.....
1	....	....	....	....	....	....	....	6	.....	....	.....	1	1	2	....	....	....	1
....	....	....	....	....	....	....	....	.....	1	....	1	....	.....	.....	....	1	....	1
....	....	....	....	....	....	....	....	2	.....	....	.....	2	1	1	....	....	....	.....
....	....	....	....	....	....	1	....	.....	12	1	5	4	3	6	1	2	....	5
....	....	....	....	....	....	....	....	8	3	....	2	....	3	2	1	3	....	1
1	....	....	....	....	....	....	....	.....	.....	....	.....	....	.....	2	....	....	1	.....
....	....	....	1	....	....	....	1	7	7	2	2	2	4	1	....	1	6	3
....	....	....	....	....	....	....	....	.....	2	....	2	....	3	1	1	1	1	.....
....	....	....	....	....	....	....	....	4	1	....	2	....	3	4	2	..	1	1
....	....	....	....	....	....	....	....	.....	.....	....	1	....	.....	.....	....	1	....	1
....	....	....	....	....	....	....	....	.....	2	....	.....	....	1	2	....	....	1	.....

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
HUDSON VALLEY DIST.—(*Con.*)								
Montgomery	5,259	5	11.00	2	40.0	.... ..	....	....
Haverstraw	7,714	14	21.77	4	28.5	142.85	1	....
Nyack	5,608	6	12.85	1	16.7	.....	....	....
Ramapo	6,600	16	26.00	2	12.5	.....	....	....
Rest of district	275,000	346	15.00	47	14.0	56.75	....	3
ADIRONDACK AND NORTHERN DISTRICT								
Totals	390,000	472	14.80	73	15.5	49.70	3	10
WATERTOWN	17,000	33	23.29	9	27.3	121.20	.. .	3
Ellisburgh	4,223	6	17.00	1	16.7	.... ..	....	....
Cape Vincent	3,000	.....	.....	.....	.....	.....	....	....
Clayton	4,250	4	11.00	0	.....	.....	....	....
OGDENSBURG	12,000	19	19.10	3	16.0	53.00	1	....
Gouverneur	6,000	9	18.00	3	33.3	111.10	....	....
Potsdam	4,000	4	12.00	1	25.0	250.00	....	....
Canton	6,013	12	24.00	1	8.3	.....	....	....
Malone	5,000	3	.....	2	.....	.....	....	....
Plattsburg	8,400	17	24.25	4	23.5	.....	....	....
Glens Falls	12,500	19	18.24	5	26.3	52.00	...	1
Whitehall	4,500	3	.....	0	....	330.00	....	1
Fort Edward	4,500	8	21.35	1	12.5	.....	....	....
Kingsbury	5,112	7	16.50	0	.....	.....	....	....
Granville	5,281	6	13.63	2	33.3	.....	....	....
Greenwich	4,500	11	29.35	1	9.0	.....	....	....
Lowville	4,000	7	21.00	1	14.2	142.85	....	1
Rest of district	280,000	304	14.15	39	12.8	40.00	2	4
MOHAWK VALLEY DISTRICT								
Totals	395,000	523	16.15	96	18.5	47.80	2	5
SCHENECTADY	28,791	38	16.06	5	12.5	62.25	....	....
Cobleskill	3,436	7	24.00	2	28.5	.....	....	....
AMSTERDAM	20,000	25	15.00	8	32.0	.....	....	....
Fort Plain	3,000	5	20.00	0	.....	.....	....	....
JOHNSTOWN	7,768	13	20.11	1	7.5	.....	....	....
GLOVERSVILLE	15,000	19	15.20	7	36.8	.....	....	....
LITTLE FALLS	12,000	11	11.00	1	9.1	.....	....	....
Herkimer	5,150	.....	.....	.....	.....	.....	....	....
Ilion	4,057	5	15.00	0	.....	.....	....	....
UTICA	55,000	76	16.60	16	21.2	75.00	....	2
Whitestown	5,225	6	.....	1	.....	.....	....	....
ROME	14,000	21	18.00	5	23.8	95.00	1	....
Boonville	3,512	7	24.00	1	14.2	.....	....	....
Camden	3,675	7	23.50	3	42.8	142.85	....	....
Waterford	5,522	13	28.28	2	16.3	230.00	....	3
Mechanicville	3,000	6	24.00	1	16.7	.....	....	....
Ballston Spa	3,527	5	17.00	1	20.0	.....	....	....
Saratoga Springs	12,500	25	24.00	3	12.0	.....	....	....
Rest of district	192,000	234	14.75	39	16.7	43.00	1	....
SOUTHERN TIER DISTRICT								
Totals	425,000	542	15.54	82	15.5	60.00	9	4
BINGHAMTON	45,000	57	15.41	11	19.3	105.25	2	2
Owego	6,600	7	14.00	2	28.5	.....	....	....
Candor	3,525	3	11.00	0	.....	.....	....	....
Waverly	4,123	3	9.00	0	.....	.....	....	....
ELMIRA	40,000	56	16.80	8	14.3	36.00	1	....

FOR APRIL—(*Continued*)

Zymotic Diseases																	
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	....	.....	.....	....	.....	....	1	1	....	....	1	2
....	....	....	....	....	....	....	..	2	2	....	2	....	2	.....	1	....	2	1
....	....	....	....	....	1	....	...	1	1	....	.....	1	.....	1	....	....	1	1
....	....	....	....	....	....	....	....	2	4	....	.....	2	1	2	2	1	2	.....
....	....	2	2	1	4	1	6	55	39	4	24	21	43	60	14	15	29	23
1	....	1	....	....	....	....	8	71	48	6	44	26	54	59	12	14	59	56
....	....	....	....	....	....	....	1	3	3	....	4	....	1	7	1	....	4	6
....	....	....	....	....	....	....	....	1	2	....	.....	1	2	.....	....	....	.....	.....
....	....	....	....	....	....	....	....	.....	.....	....	.....	....	.....	.....	....	....	.....	.....
....	....	....	....	....	....	....	1	1	.....	....	.....	....	1	1	....	....	....	1
....	....	....	....	....	....	....	....	7	2	....	1	1	.....	4	....	..	3	.....
....	....	....	....	....	....	....	1	1	1	....	.....	....	1	2	....	....	1	2
....	....	....	....	....	....	....	1	.....	1	....	.....	....	.....	.....	....	....	....	1
....	....	....	....	....	....	....	....	2	3	....	2	....	2	2	....	1	.....	.....
....	....	....	....	....	....	....	....	.....	.....	....	2	.....	.....	1	....	....	.....	.....
....	....	....	....	....	....	....	....	4	.....	....	.....	1	2	4	....	2	4	4
....	....	....	....	....	....	..	....	6	.....	....	1	1	1	2	1	2	1	3
....	....	....	....	....	....	....	....	.....	.....	....	1	1	.....	.....	....	....	....	.....
....	....	....	....	....	....	....	....	1	1	....	2	....	1	1	....	....	....	2
....	....	....	....	....	....	....	....	.....	1	2	1	....	1	.....	....	....	1	1
....	....	....	....	....	....	....	....	1	.....	....	2	2	.....	.....	1	....	.....	.....
....	....	....	....	....	....	....	....	2	2	....	.....	1	3	1	....	....	1	1
....	....	....	....	....	....	....	....	.....	.....	....	.....	.....	.....	1	1	....	3	1
1	....	1	....	....	....	....	5	42	32	4	27	18	39	33	8	11	43	34
....	....	3	....	1	5	5	4	96	44	5	39	45	53	77	22	13	44	60
....	....	....	....	....	1	1	....	3	5	....	4	3	2	4	1	1	1	2
....	....	....	....	....	....	....	....	1	.....	....	.....	1	1	.....	....	1	1	2
....	....	....	....	....	....	....	....	6	1	1	4	2	1	3	1	2	....	4
....	....	....	....	....	....	....	....	.....	1	....	.....	....	1	1	1	....	1	.....
....	....	....	....	....	....	....	....	3	2	....	.....	....	2	1	2	....	1	2
....	....	....	....	....	....	....	....	2	1	....	2	2	2	3	2	....	1	4
....	....	....	....	....	....	....	....	1	1	1	1	2	1	1	1	1	....	1
....	....	....	....	....	....	....	....	.....	.....	....	.....	....	.....	.....	....	....	.....	.....
....	....	....	....	....	....	....	....	1	2	....	.....	....	1	....	....	....	1	.....
....	....	....	....	....	1	3	....	12	5	....	6	6	10	13	2	2	2	12
....	....	....	....	....	....	....	....	.....	1	....	.....	1	1	1	....	....	1	.....
....	...	1	....	....	....	....	....	5	.....	....	1	1	1	6	....	....	2	3
....	....	....	....	....	....	....	....	1	1	....	.....	....	.....	3	....	....	3	.....
....	....	....	....	....	1	....	....	1	.....	....	1	1	2	.....	....	....	.....	1
....	....	....	....	....	....	....	....	2	1	....	1	....	2	3	....	....	1	.....
....	....	....	....	....	....	....	....	3	.....	....	.....	....	.....	2	....	....	.....	2
....	....	....	....	....	....	....	....	2	.....	....	.....	1	.....	.....	1	....	1	.....
....	....	1	....	1	2	1	4	44	20	3	18	20	25	34	6	5	27	22
....	....	4	....	1	6	5	3	59	44	5	44	31	81	86	28	24	55	53
....	....	....	....	....	..	....	2	10	7	1	3	3	10	9	....	1	2	6
....	....	..	....	...	....	....	....	.....	1	....	.....	....	1	3	....	....	1	1
....	....	....	....	....	....	....	....	1	.....	....	.....	....	.....	.....	....	....	1	1
....	....	....	....	....	....	....	....	1	1	....	.....	....	.....	1	....	....	.....	.....
....	....	....	....	....	1	....	....	7	8	....	5	4	9	7	2	7	2	3

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
SOUTHERN TIER DIST.—(*Con.*)								
Horseheads	3,319	5	18.07	3	60.0	200.00	1	....
HORNELLSVILLE	12,000	14	14.00	4	28.5	142.85	....	1
Bath	3,261	5	18.40	1	20.0	.....	.....	.....
CORNING	10,026	8	9.60	2	25.0	.....	.....	.....
Wellsville	5,083	10	24.00	3	30.0	.....	.....	.....
OLEAN	10,000	10	12.00	0	.....	.....	.....	.....
Salamanca	3,700	1	.....	1	.....	.....	.....	.....
DUNKIRK	13,200	17	15.30	6	35.5	.....	.....	.....
JAMESTOWN	18,637	20	12.88	4	20.0	50.00	.....	.....
Westfield	3,000	3	12.00	0	.....	.....	.....	.....
Fredonia	3,400	8	28.24	1	12.5	.....	.....	...
Rest of district	250,000	315	15.12	36	11.4	63.50	5	1
EAST CENTRAL DISTRICT Totals	415,000	486	14.35	63	13.2	44.50	3	7
SYRACUSE	120.000	116	11.75	26	22.4	51.75	1	2
Baldwinsville	3,040	1	.....	0	.....	.....	.....	.....
De Witt	5,182	.....	.....	.....	.....	.....	.....	.....
Cortland	5,600	14	19.55	0	.....	.....	.....	.....
Homer	3,000	1	.....	1	.....	.....	.....	.....
Oneida	6,100	6	12.00	0	.....	.....	.....	.....
Hamilton	4,110	4	12.00	0	.....	.....	.....	.....
Cazenovia	3,803	6	19.00	0	.....	.....	.....	.....
Brookfield	3,235	3	11.00	0	.....	.....	.....	...
Norwich	6,000	11	22.00	0	.....	90.00	.....	1
Oneonta	8,000	19	28.50	4	21.0	52.50	.....	.....
Worcester	2,670	6	24.00	0	.....	.....	.....	.....
Cooperstown	3,000	2	8.00	0	.....	.....	.....	.....
Walton	4,811	10	.....	0	.....	100.00	.....	1
Delhi	3,000	2	8.00	0	.....	.....	.....	.....
Liberty	3,500	8	27.00	1	12.5	125.00	.....	1
Rest of district	230,000	277	14.73	31	11.2	43.35	2	2
WEST CENTRAL DISTRICT Totals	314,000	407	15.25	60	14.5	55.00	3	3
AUBURN	30,060	34	13.60	9	.....	.....	.....	.....
ITHACA	13,460	21	17.70	4	.....	.....	.....	.....
Hector	4,832	8	19.86	0	.....	.....	.....	.....
Waterloo	4,350	8	22.00	2	.....	.....	.....	.....
Seneca Falls	6,500	9	16.61	1	11.0	.....	.....	.....
GENEVA	10,000	22	26.00	6	27.3	455.00	.....	1
Canandaigua	5,868	6	.....	3	.....	.....	.....	.....
Manchester	4,181	7	21.00	2	28.5	.....	.....	.....
Phelps	5,150	5	12.00	1	20.0	.....	..	.....
Penn Yan	4,800	8	20.00	1	12.5	.....	.....	.....
Batavia	7,291	9	15.00	1	11.0	222.20	.....	.....
Dansville	3,758	7	22.35	0	.....	.....	.....	.....
Le Roy	3,000	6	24.00	1	16.7	.....	.....	.....
Warsaw	4,700	2	.....	0	.....	.....	.....	.....
Rest of district	212,000	255	14.06	29	10.5	45.00	3	2
LAKE ONTARIO AND WESTERN DISTRICT Totals	875,000	1,060	14.75	216	20.4	66.00	6	9
BUFFALO	360,000	400	13.53	110	27.5	92.50	3	3
TONAWANDA	9,000	5	.....	1	20.0	200.00	.....	.....
Amherst	4,000	6	18.00	1	16.7	500.00	.....	2

FOR APRIL—(*Continued*)

Zymotic Diseases																		
Malarial diseases.	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrh al)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	....	.....	.....	....	.....	....	.....	.....	....	....	2	2
....	....	1	....	....	....	....	....	.....	1	....	2	....	3	.....	1	1	1	2
....	....	....	....	....	....	....	....	.....	.....	....	.....	....	1	1	....	....	2	1
....	....	....	....	....	....	....	....	1	2	....	1	....	.....	1	....	1	1	1
....	....	....	....	....	....	....	....	1	1	....	1	....	1	1	....	....	2	2
....	....	....	....	....	....	....	....	1	....	....	1	1	3	1	....	....	1	1
....	....	....	....	....	....	....	....	1	.....	....	.....	....	.....	.....	....	....	.....	.....
....	....	....	....	....	....	....	....	2	2	....	3	....	1	.....	3	1	2	2
....	....	1	....	....	....	....	....	1	.....	....	3	2	4	3	1	....	1	4
....	....	..	....	....	..	....	....	1	.....	....	.....	....	1	.....	....	....	.....	1
....	....	....	....	....	....	....	....	1	.....	....	2	....	1	1	....	2	1	.....
....	....	2	....	1	5	5	1	31	20	4	24	21	46	56	21	11	36	28
....	....	3	....	1	5	2	1	33	42	1	36	39	78	62	25	15	44	33
....	....	1	....	....	1	....	1	14	9	....	11	6	14	19	4	3	8	12
....	....	....	....	....	....	....	....	.....	....	....	....	....	1	.....	....	....	....	.....
....	....	....	....	....	....	....	....	1	2	....	1	....	2	2	2	1	2	.....
....	....	....	....	1	....	....	....	.....	..	....	.....	....	.....	.....	....	....	....	1
....	....	....	....	....	....	....	....	1	1	....	.....	....	1	2	....	1	....	.....
....	....	....	....	....	....	....	..	.....	.....	1	1	....	.....	1	....	1	....	.....
....	....	...	....	....	....	....	....	4	.....	....	.....	....	1	.....	....	....	1	.....
....	....	....	....	....	....	....	....	.....	1	....	.....	....	1	.....	....	....	1	.....
....	..	....	....	....	....	....	....	2	1	....	.....	....	1	2	2	....	2	.....
....	....	....	....	....	1	....	....	3	1	....	.....	....	2	2	1	2	1	1
....	....	....	....	....	....	....	....	....	1	....	.....	....	3	.....	....	....	2	.....
....	....	....	....	....	....	....	....	1	.....	....	.....	....	.....	.....	....	....	1	.....
....	....	1	....	....	....	....	....	4	1	....	1	2	1	.....	....	....	.....	.....
....	....	....	....	....	....	....	....	1	.....	....	.....	....	.....	1	....	....	.....	.....
....	....	....	....	....	....	....	....	2	2	....	.....	1	.....	2	....	....	.....	.....
....	....	2	....	....	3	2	....	45	23	....	23	20	51	37	16	7	26	19
...	.....	1	3	2	....	3	7	71	35	1	41	20	51	68	9	16	34	39
....	....	....	....	1	...	....	1	6	2	....	3	....	4	6	1	2	....	8
....	....	....	....	....	....	....	1	3	1	....	2	3	4	5	....	....	....	3
....	....	....	....	....	....	...	....	2	2	....	1	....	.....	1	....	....	2	.....
....	....	....	....	....	....	....	....	3	.....	....	2	1	1	1	....	....	2	1
....	....	....	....	....	....	....	....	3	1	....	1	....	.....	1	...	1	1	.....
....	....	1	....	..	....	2	1	1	.....	....	4	....	1	3	1	1	1	2
....	....	....	....	....	....	....	1	.....	.....	....	.....	....	....	1	1	....	....	2
....	....	....	....	....	....	....	....	1	2	....	.....	....	.....	2	....	1	1	.....
....	....	....	....	....	....	....	....	3	.....	....	.....	....	.....	2	....	....	....	.....
....	....	....	....	....	....	....	....	1	.....	....	.....	1	2	2	....	....	....	1
....	....	...	2	....	....	....	....	2	1	....	1	1	.....	1	....	....	1	.....
....	....	....	....	....	....	....	....	1	.....	....	.....	....	1	2	....	1	1	1
....	....	....	....	....	....	....	....	.....	3	...	.....	....	1	1	....	....	....	1
....	....	...	....	....	....	....	....	.....	.....	....	.....	1	.....	.....	....	....	....	1
....	....	..	1	4	....	1	3	45	23	1	26	13	37	40	6	10	24	19
....	1	9	4	2	5	13	21	193	99	18	90	65	123	135	42	41	94	90
....	....	7	1	1	4	5	13	76	43	6	27	20	35	48	15	10	42	41
....	....	....	....	....	....	1	....	1	.....	....	.....	....	2	.....	....	....	....	1
....	....	....	....	....	....	1	....	.....	2	....	.....	1	.....	.....	....	....	....	.....

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
LAKE ONTARIO AND WESTERN DISTRICT—(*Continued*)								
NORTH TONAWANDA	9,000	8	11.00	2	25.0	.....	....	....
LOCKPORT	16,088	22	16.50	5	22.7	.....	....	....
NIAGARA FALLS	16,000	27	20.25	6	22.2	111.10	....	1
Medina	4,500	4	11.00	0	.....	.....	....	....
Albion	4,536	7	18.65	0	.....	.....	....	....
Brockport	3,742	9	26.00	2	22.2	.....	....	....
ROCHESTER	175,000	205	14.45	45	22.0	48.78	1	2
Palmyra	4,173	7	20.85	0	.....	.....	....	....
Newark	4,600	4	11.00	0	.....	.....	....	....
Lyons	6,127	15	25.00	6	40.0	.....	....	....
Clyde	3,000	5	20.00	0	.....	.....	....	....
OSWEGO	22,000	32	17.45	2	6.3	62.50	1	1
Fulton	4,224	6	18.00	0	.....	.....	....	....
Richland	3,637	4	.....	1	.....	.....	....	....
Rest of district	231,000	294	15.50	35	12.0	50.00	1	....
Totals for the state	7,110,000	10,383	17.75	2,627	25.4	77.00	20	101
Totals for March, 1899	.....	11,065	19.00	2,807	25.2	75.00	22	121
Totals for April, 1898	.....	10,000	18.15	2,763	28.0	28.85	32	80

REMARKS.—The 10,383 deaths reported during the month represent a daily mortality of 346, the daily rate for the first three months of the year was 330, showing a saving this month of 17.75 annually per 1,000 population, against 19.00 in March, 19.75 in February, and 21.00 in preceding quarter, viz. 800 deaths, and the infant mortality is likewise the same. There is a of 75 in diseases of the circulatory, and of 300 in deaths from old age and unclassified causes, days of the three preceding months. Diseases of the digestive system and deaths from

Compared with the corresponding month of 1898, there were 135 fewer deaths from zymotic deaths was, however, 375 more, and from consumption and local diseases there were 500 more i: has continued to be reported, probably having increased the mortality of the present have slightly increased since last month, typhoid fever, scarlet fever, whooping cough and

Smallpox caused one death in New York city and one in Rochester, the latter being the case of the disease at Caledonia, Livingston county; one at Batavia; one at Buffalo; one at vicinity of Newport News, Va., whence it probably originated; the origin of the other case developed independently of previous outbreaks in this state.

The temperature during the month was 3° above the normal average of 44°, ranging from the average of 2.40 inches. Westerly and north-westerly winds prevailed.

FOR APRIL—(*Concluded*)

Zymotic Diseases																			
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	....	1	.....	...	.....	2	.....	1	....	2	...	2
....	....	....	....	....	....	....	....	7	.....	2	4	....	2	3	1	1	1	1
....	....	....	....	....	....	....	2	4	2	1	3	....	4	5	2	....	....	3
....	....	....	....	....	....	....	....	1	1	....	.....	3	.....	.....	....	.....	.....	.....
....	....	....	...	....	....	....	....	.....	.....	1	1	1	1	1	....	1	1	.....
....	....	....	....	....	....	....	....	5	.....	....	.....	....	.....	1	....	....	1	1
....	1	2	....	1	....	2	1	33	17	5	23	16	25	29	5	11	16	15
....	....	....	....	....	....	....	....	.....	.....	....	.....	1	1	1	1	1	2	.....
....	....	....	....	....	....	....	....	1	.....	....	.....	1	.....	2	....	....	....	.....
....	....	....	....	....	....	....	....	5	2	....	2	....	1	1	....	1	1	2
....	....	....	....	....	....	....	....	2	1	...	.....	1	1	.....	...	....	....	.....
....	....	....	....	....	....	....	....	3	3	....	4	3	3	1	....	1	3	4
....	....	....	....	....	....	....	....	2	1	....	1	....	1	.....	....	...	....	1
....	....	....	....	....	....	....	....	.....	.....	....	3	1	.....	.....	....	....	....	.....
....	....	....	3	....	1	4	5	52	27	3	22	15	42	42	18	18	27	19
20	2	76	68	40	65	197	138	1,895	1,187	98	760	820	997	1,286	846	430	532	1,318
12	1	98	61	40	73	220	126	2,145	1,284	81	726	835	1,059	1,220	418	419	548	1,390
28	....	84	126	29	18	252	137	1,869	1,100	91	671	782	884	1,218	333	435	481	1,240

which is 11 less daily than in March, 39 less than in February, and 54 less than in January; 1,000 deaths from the rate of mortality of the preceding quarter. There was a death-rate of January. The total of zymotic deaths during the month is identical with the average for the saving of 588 deaths from acute respiratory diseases, of 90 in diseases of the nervous system, there are also 75 fewer deaths from consumption, than in an average corresponding number of accidents have somewhat increased.

diseases, the decrease being in measles, whooping cough and diphtheria; the total number of deaths than in April, 1898. Grippe was estimated to have caused 1,300 deaths last month, and month about 750, against 500 in April, 1898. Cerebro-spinal meningitis and diarrheal diseases diphtheria have diminished moderately.

first from this cause outside the metropolis since 1894. Elsewhere in the state, there is one Syracuse; and very recently two cases at Coeymans, Albany county, negroes from the is not clear, save that at Buffalo, which is traced to New Mexico, but all seem to have

20° to 83°; there were only five cloudy days and a deficiency in the rainfall of one inch from

MONTHLY BULLETIN OF THE NEW

Abstract of reports of deaths and causes in the following

[Cities are printed in SMALL CAPS, villages

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
MARITIME DISTRICT Totals	3,896,600	5,600	17.25	1,745	31.2	95.20	41	33
CITY OF NEW YORK Totals	3,550,053	5,217	17.33	1,663	31.8	96.25	38	27
BOROUGH OF MANHATTAN	1,953,569	2,987	18.00	997	33.5	97.10	25	18
BOROUGH OF THE BRONX	163,537	285	20.40	81	28.3	105.25	2	....
BOROUGH OF BROOKLYN	1,213,548	1,686	16.82	511	30.3	95.50	8	8
BOROUGH OF QUEENS	134,139	168	14.70	55	32.8	83.35	3	....
BOROUGH OF RICHMOND	67,260	91	15.93	19	20.9	66.00	....	1
Oyster Bay	15,000	21	16.80	4	20.0	.....	....	....
Hempstead	24,000	26	13.00	6	23.0	223.50	1	....
North Hempstead	8,726	11	15.00	3	27.2	90.00	....	....
Southold	7,671	7	11.00	1	14.2	.....	....	....
Sag Harbor	3,000	4	16.00	2	50.0	.....	....	....
Huntington	6,253	20	28.00	2	10.0	50.00	....	1
Brookhaven	13,500	13	12.00	1	7.7	77.00	....	....
YONKERS	42,600	54	15.14	16	29.6	20.40	....	1
Greenburgh	12,080	29	29.00	3	10.3	103.00	....	....
MOUNT VERNON	15,513	33	25.50	13	39.4	60.60	1	....
Port Chester	7,547	10	15.90	2	20.0	.....	....	....
Sing Sing	9,500	10	12.63	3	30.0	.....	....	....
NEW ROCHELLE	10,000	6	7.20	0	.....	.....	....	....
Peekskill	10,000	13	15.60	2	15.3	76.50	....	....
White Plains	4,042	4	12.00	0	.....	.....	....	....
Rest of district	90,000	122	16.20	24	20.0	120.00	1	4
HUDSON VALLEY DISTRICT Totals	700,000	895	15.15	147	16.5	60.00	2	23
ALBANY	100,000	146	17.20	28	19.2	41.85	....	3
COHOES	23,000	28	13.15	8	28.5	171.50	....	3
TROY	65,009	99	18.00	23	23.1	53.00	1	1
WATERVLIET	14,000	22	18.85	7	31.8	136.35	....	1
Green Island	4,500	2	6.00	0	.....	.....	....	....
Lansingburg	12,000	15	15.00	4	26.6	200.00	....	2
Hoosick Falls	7,074	5	8.57	0	.....	.....	....	....
RENSSELAER	8,000	9	13.50	2	22.2	333.30	...	2
COXSACKIE	3,824	8	25.00	1	12.5	125.00	....	1
Catskill	5,000	9	21.50	1	11.1	222.20	...	2
HUDSON	10,000	14	16.80	0	.....	214.25	....	....
KINGSTON	25,000	31	14.60	3	10.0	80.00	....	....
Ellenville	3,000	5	20.00	1	20.0	.....	....	....
Marbletown	3,689	1	.....	1	.....	.....	....	....
Rosendale	6,125	14	25.00	2	14.2	285.00	....	3
Esopus	5,035	6	14.40	0	....	166.60	...	....
Saugerties	4,237	6	17.00	0	.....	.....	....	....
POUGHKEEPSIE	25,000	23	11.00	5	21.6	.....	....	...
Fishkill	12,000	17	17.00	1	12.0	.....	....	....
Wappinger Falls	3,718	11	.....	2	18.2	.....	....	...
NEWBURGH	36,000	30	10.00	5	16.7	33.33	....	....
Port Jervis	9,327	1	.....	0	.....	.....	....	1
MIDDLETOWN	12,000	20	20.00	5	25.0	.....	....	....
Warwick	6,000	1	.....	1	.....	.....	....	....
Goshen	4,646	7	18.00	0	.....	.....	....	....

YORK STATE BOARD OF HEALTH

districts, cities, villages and towns during May, 1899

[In *italics* and towns in Roman type]

ZYMOTIC DISEASES																		
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
12	5	64	76	31	28	171	69	969	718	46	396	467	411	538	190	328	154	847
11	5	61	75	34	27	160	64	892	671	46	374	454	371	481	179	306	136	813
5	....	37	36	22	21	85	41	531	365	33	200	278	189	284	99	166	83	510
1	5	2	5	1	1	9	4	39	71	2	14	18	17	25	7	21	8	33
4	....	19	33	11	3	60	16	285	212	8	130	132	137	185	63	101	30	241
1	....	3	1	....	1	3	2	30	11	3	12	16	19	27	6	11	3	16
....	....	..	....	....	1	3	1	7	12	....	9	10	9	10	4	7	4	13
....	....	....	....	....	....	....	....	4	3	....	1	....	3	2	1	1	2	4
....	....	1	....	....	....	2	2	2	.....	...	2	2	1	4	2	4	1	2
....	....	....	1	....	....	....	....	4	2	...	1	....	1	.....	....	1	....	1
....	....	....	....	....	....	....	....	.....	3	...	...	....	1	2	....	....	1	.....
....	....	....	....	....	....	....	....	.....	...	....	2	....	.....	2	....	....	....	.....
....	....	1	....	....	....	....	....	4	1	....	2	1	2	5	1	1	1	1
....	....	....	....	....	....	....	....	.....	2	....	.....	1	2	4	....	....	1	2
....	....	....	....	....	....	....	....	6	8	....	3	3	6	11	2	3	1	10
....	....	....	....	....	....	3	....	4	4	....	1	7	5	3	....	....	2	.....
....	....	....	....	....	....	....	1	7	2	....	3	4	3	4	....	1	4	3
....	....	....	....	....	....	....	....	1	4	....	1	1	.....	.....	....	2	....	1
....	....	....	....	....	....	....	....	1	.....	....	2	1	3	3	....	....	....	.....
....	....	....	....	....	....	....	....	1	.....	....	1	1	.....	1	1	1	....	.....
....	....	....	....	....	....	1	....	1	3	...	1	2	1	2	1	....	....	1
....	....	....	....	....	....	....	....	.....	.....	....	.....	2	1	.....	....	....	....	1
1	....	1	....	....	1	5	2	25	15	....	2	3	11	14	3	3	13	3
1	....	....	3	....	....	9	14	91	119	3	63	61	107	143	34	63	56	99
....	....	....	....	....	....	2	1	14	24	....	11	14	13	19	9	10	6	20
....	....	....	....	....	....	....	....	4	5	.....	.....	2	1	3	1	2	2	5
....	....	....	....	....	....	1	2	10	21	1	6	6	16	11	2	4	4	13
....	....	....	2	..	....	....	....	2	1	.. .	1	3	3	1	2	....	1	5
....	....	....	....	....	....	....	....	.....	1	....	.....	....	1	.....	....	....	....	.....
....	....	....	....	....	....	1	....	2	1	....	1	2	1	1	....	....	....	4
....	....	....	....	....	....	....	....	1	1	....	2	....	1	.....	....	....	....	.....
....	....	....	....	....	....	1	....	2	1	1	.....	....	.....	....	....	....	....	2
....	....	....	....	....	....	....	....	.....	1	....	.....	....	1	4	....	....	....	1
....	....	....	1	....	....	....	2	1	.....	....	1	...	3	3	....	2	1	.....
....	....	....	....	....	....	....	1	3	5	1	3	2	3	6	....	2	3	2
....	....	....	....	....	....	....	....	1	1	....	.....	1	1	.....	....	1	....	.....
....	....	....	....	....	....	....	....	.....	.....	....	.....	....	.....	.....	....	....	....	1
....	....	....	....	....	....	....	1	4	.....	....	1	...	1	.....	....	4	....	.....
....	....	....	....	....	....	1	....	.....	1	....	.....	....	.....	1	....	2	1	.....
....	....	....	....	....	....	....	....	.....	2	....	.....	....	2	1	....	....	....	1
....	....	....	...	....	....	....	....	3	3	1	2	...	3	4	....	1	3	3
....	....	....	....	....	....	....	....	.....	4	....	1	2	2	5	....	2	1	.....
....	....	....	....	....	....	....	....	.....	2	1	1	2	1	3	....	....	....	1
....	....	....	....	....	....	....	....	2	3	....	4	3	5	3	....	4	3	2
....	....	....	....	....	....	....	....	.....	.....	....	.....	....	.....	.....	....	1	....	.....
....	....	....	....	....	....	....	....	.....	3	....	1	1	3	6	....	1	2	3
....	....	....	....	....	....	....	....	1	.....	....	.....	....	.....	.....	....	....	....	.....
....	....	....	....	....	....	....	....	.....	.....	.....	1	....	1	1	....	1	3	.....

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
HUDSON RIVER DIST.—(*Con.*)								
Montgomery	5,259	6	13.00	1	16.7	.....	....	....
Haverstraw	7,714	.....	.....	.....	.....	.....	....	....
Nyack	5,603	5	10.72	1	20.0	.....	....	....
Ramapo	6,600	6	11.60	0	.....	167.00	....	....
Rest of district	275,000	348	14.75	46	10.0	33.00	1	4
ADIRONDACK AND NORTHERN DISTRICT								
Totals	390,000	425	13.75	71	16.5	47.60	4	7
WATERTOWN	17,000	23	19.77	7	25.0	107.00	....	1
Ellisburgh	4,223	5	14.20	0	.....	.....	....	....
Cape Vincent	3,000	4	16.00	1	25 0	.....	....	....
Clayton	4,250	4	11.60	1	25.0	.....	....	...
OGDENSBURG	12,000	18	18.00	4	22.2	55.50	1	....
Gouverneur	6,000	5	10.00	1	20.0	.....	....	....
Potsdam	4,000	8	24.00	2	25.0	125.00	....	1
Canton	6,013	10	20.00	1	10.0	.....	..	....
Malone	5,000	10	24.00	3	30.0	.....	....	....
Plattsburg	8,400	11	15.80	3	27.3	.....	....	....
Glens Falls	12,500	19	18.20	3	21.0	.....	....	....
Whitehall	4,500	1	.....	0	.....	.....	....	...
Fort Edward	4,500	7	18.65	1	14.2	.....	....	....
Kingsbury	5,112	2	.....	0	.....	.....	....	....
Granville	5,231	3	7.00	0	.....	.....	....	....
Greenwich	4,500	5	13.35	0	.....	.....	....	....
Lowville	4,000	2	6.00	0	.....	.....	....	....
Rest of district	280,000	288	11.50	44	15.5	55.00	3	5
MOHAWK VALLEY DISTRICT								
Totals	395,000	477	14.20	81	17.0	62.50	6	7
SCHENECTADY	26,791	27	11.15	4	14.8	147.75	2	....
Cobleskill	3,486	2	8.00	0	.....	500.00	1	....
AMSTERDAM	20,000	24	14.40	4	16.7	85.00	....	2
Fort Plain	3,000	.....	.....	.....	.....	.....	....	....
JOHNSTOWN	7,768	9	14.00	1	11.1	111.11	....	....
GLOVERSVILLE	15,000	16	13.00	5	30.0	60.00	....	....
LITTLE FALLS	12,000	9	9.00	3	33.3	222.22	....	1
Herkimer	5,150	11	25.00	2	18.2	91.00	....	....
Ilion	4,057	4	12.00	1	25.0	250.00	....	1
UTICA	55,000	68	14.60	14	20.5	44.15	....	....
Whitestown	5,225	5	11.00	1	20.0	.....	....	....
ROME	14,000	17	14.60	2	12.0	.....	....	....
Boonville	3,512	6	20.50	2	33.3	.....	...	....
Camden	3,675	8	25.00	0	.....	.....	....	....
Waterford	5,522	13	25.00	6	46.0	76.50	....	1
Mechanicville	3,000	14	.....	4	28.5	75.00	....	1
Ballston Spa	3,527	9	25.00	1	11.1	.....	....	....
Saratoga Springs	12,500	23	21.00	3	13.0	45.00	1	....
Rest of district	199,000	212	13.25	28	13.2	52.00	2	1
SOUTHERN TIER DISTRICT								
Totals	435,000	467	13.00	63	13.5	85.00	4	3
BINGHAMTON	45,000	48	12.57	3	6.3	.....	...	....
Oswego	6,000	6	12.00	2	33.0	.....	....	....
Candor	3,525	3	11.00	1	33.0	.....	....	....
Waverly	4,123	5	15.00	1	20.0	.....	....	...
ELMIRA	40,000	41	12.05	6	15.0	.....	....	....

FOR MAY—(*Continued*)

Zymotic Diseases																		
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
...	....	....	....	....	....	....	....	.....	.....	....	1	....	2	2	....	....	....	1
....	....	....	....	....	....	....	....	1	.....	....	.....	....	.....	2	1	....	....	.....
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....	....	....	....	....	....	1	....	.....	1	....	1	1	.....	1	1	....	....	.....
1	....	...	....	....	....	2	7	38	36	3	24	22	43	65	18	25	26	33
1	....	1	....	....	2	4	1	58	52	3	31	29	54	68	17	21	42	51
....	....	....	....	....	1	....	1	6	3	....	3	....	3	4	1	3	....	2
....	....	....	....	....	....	....	....	.....	.....	....	1	....	.....	2	....	....	2	.....
....	....	....	....	....	....	....	....	.....	1	....	.....	1	.....	.....	....	....	1	1
....	....	....	....	....	....	....	....	.....	.....	....	.....	....	.....	1	....	....	2	1
....	....	....	....	....	....	....	....	5	2	....	1	....	1	1	3	3	1	.....
....	....	....	....	....	....	....	....	1	.....	....	1	....	.....	2	....	....	1	.....
....	....	....	....	....	....	....	....	.....	.....	....	1	....	.....	2	1	....	1	2
....	....	....	....	....	....	....	....	1	4	....	.....	1	2	1	....	1	....	.....
....	....	....	....	....	....	....	....	.....	.....	....	.....	1	1	4	1	....	1	2
....	....	....	....	....	....	....	....	1	.....	....	.....	....	3	3	....	1	2	2
....	....	....	....	....	....	....	....	4	2	....	1	2	4	3	....	....	....	3
....	....	....	....	....	....	....	....	.....	.....	....	.....	.....	.....	.....	.....	....	1	....
....	....	....	....	....	....	....	....	.....	1	....	.....	1	1	1	....	1	1	1
....	....	....	....	....	....	....	....	.....	.....	....	.....	....	1	.....	....	....	1	.....
....	....	....	....	....	....	....	....	1	.....	....	.....	....	.....	1	....	....	1	.....
....	....	....	....	....	....	....	....	1	1	....	.....	....	.....	.....	1	1	1	.....
1	....	1	....	....	1	4	....	33	37	3	13	23	37	38	10	11	26	37
....	....	1	....	1	4	3	8	61	52	4	31	36	70	66	15	24	42	46
....	....	....	....	....	1	....	1	6	.....	1	2	2	6	1	1	...	2	2
....	....	....	....	....	....	....	....	.....	.....	....	.....	....	1	.....	....	....	.....	.....
....	....	....	....	....	....	....	....	3	5	....	.....	1	3	6	....	1	1	2
....	....	....	....	....	....	....	....	.....	.....	....	.....	....	.....	.....	....	....	.....	.....
....	....	....	....	1	....	....	....	.....	3	....	.....	....	1	1	....	....	1	2
....	....	....	....	....	....	....	1	1	2	1	3	....	3	1	....	1	....	3
....	....	....	....	....	....	....	1	.....	1	....	.....	1	.....	3	1	....	....	1
....	....	1	....	....	....	....	....	2	1	....	.....	2	2	2	....	1	....	.....
....	....	....	....	....	....	....	....	.....	1	....	1	....	.....	.....	.....	1	....	.....
....	....	....	....	....	....	1	2	5	8	3	3	7	14	7	2	3	5	6
....	....	....	....	....	....	....	....	2	.....	....	1	....	.....	1	....	....	....	1
....	....	....	....	....	....	....	....	3	3	....	.....	2	1	3	....	3	....	2
....	....	....	....	....	....	....	....	1	.....	....	.....	....	2	2	....	....	....	1
....	....	....	....	....	....	....	....	2	.....	....	1	1	1	1	1	....	1	.....
....	....	....	....	....	....	....	....	4	1	...	1	1	.....	2	....	....	2	1
....	....	....	....	....	....	....	....	.....	.....	....	2	2	2	1	....	2	....	4
....	....	....	....	....	....	....	....	2	1	....	2	....	3	1	....	....	1	.....
....	....	....	....	....	3	2	3	4	1	...	1	4	1	3	....	1	4	3
....	....	....	....	....	3	2	3	23	25	....	14	13	31	31	10	11	25	18
....	....	3	....	....	1	1	4	47	47	6	47	30	60	64	17	28	52	53
....	....	....	....	....	....	....	....	9	7	....	4	4	5	4	2	1	7	5
....	....	....	....	....	....	....	....	2	....	....	1	....	2	....	....	....	....	1
....	....	....	....	....	....	....	....	.....	1	....	1	1	.....	.....	....	....	.....	.....
....	....	....	....	....	....	....	....	2	1	....	.....	....	.....	2	2	....	....	.....
....	....	....	....	....	....	....	....	3	5	1	7	5	4	5	2	3	1	5

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
SOUTHERN TIER DIST.—(*Con.*)								
Horseheads	3,319	3	10.85	0	.....	.....	....	....
HORNELLSVILLE	12,000	10	10.00	1	10.0	100.00	....	1
Bath	2,361	5	18.40	0	.....	200.00	....	....
CORNING	10,625	9	10.78	1	11.1	.....	....	....
Wellsville	5,063	4	10.00	0	.....	.....	....	....
OLEAN	10,080	12	14.40	4	33.3	66.50	....	....
Salamanca	2,700	3	10.09	1	33.3	333.33	....	....
DUNKIRK	13,200	16	14.40	5	31.2	62.50	....	....
JAMESTOWN	18,627	19	12.25	4	21.0	.....	....	....
Westfield	3,000	5	20.00	0	.....	.....	....	....
Fredonia	3,400	3	11.00	1	33.3	.....	....	....
Rest of district	250,000	275	12.50	83	12.5	42.00	4	2
EAST CENTRAL DISTRICT Totals	415,000	464	12.50	58	13.3	40.00	1	6
SYRACUSE	120,000	133	13.10	22	16.5	15.00	....	1
Baldwinsville	3,040	2	8.00	0	.....	.....	....	....
De Witt	5,182	5	12.80	1	20.0	.....	....	....
Cortland	8,500	13	18.00	1	7.7	.....	....	....
Homer	3,000	2	8.00	0	.....	.....	....	....
Oneida	6,100	6	12.00	0	.....	167.00	....	....
Hamilton	4,110	8	33.09	0	.....	.....	....	....
Canaseraga	3,803	7	22.15	2	28.5	285.00	....	1
Brookfield	3,235	....	.....	.....	.....	.....	....	....
Norwich	6,000	8	16.00	2	25.0	.....	....	....
Oneonta	8,000	9	13.25	1	11.1	.....	....	....
Worcester	2,670	2	9.09	0	.....	500.00	....	1
Cooperstown	3,000	4	16.00	0	.....	.....	....	....
Walton	4,811	6	.....	0	.....	.....	....	....
Delhi	3,000	3	12.00	1	33.3	.....	....	....
Liberty	3,500	7	24.00	1	14.2	.....	....	....
Rest of district	230,000	249	12.00	27	10.6	45.25	1	2
WEST CENTRAL DISTRICT Totals	314,000	343	12.80	44	12.7	63.00	7	2
AUBURN	30,000	44	17.30	7	16.0	133.50	1	....
ITHACA	13,460	16	14.25	4	25.0	.....	....	....
Hector	4,332	9	22.35	0	.....	.....	....	....
Waterloo	4,350	4	11.00	0	.....	250.00	...	....
Seneca Falls	6,500	6	11.00	1	16.7	.....	....	....
GENEVA	10,000	8	10.00	3	37.5	.....	....	....
Canandaigua	5,565	4	8.80	1	25.0	.....	....	....
Manchester	4,181	6	17.50	0	.....	.....	....	....
Phelps	5,150	6	16.00	0	.....	.....	....	....
Penn Yan	4,800	7	17.50	2	28.5	.....	....	....
Batavia	7,221	16	25.00	2	12.5	62.50	....	1
Dansville	3,758	6	19.00	1	16.7	.....	....	....
Le Roy	3,000	5	20.00	1	20.0	200.00	....	....
Warsaw	4,700	5	12.75	1	20.0	200.00	1	....
Rest of district	212,000	261	11.15	21	10.0	60.00	5	2
LAKE ONTARIO AND WESTERN DISTRICT Totals	875,000	884	12.00	156	17.6	67.50	6	11
BUFFALO	360,000	359	11.71	83	23.2	53.65	2	4
TONAWANDA	9,000	3	.....	2	.....	.....	....	....
Amherst	4,000	5	15.00	1	20.0	200.00	....	....

FOR MAY—(*Continued*).

Zymotic Diseases																		
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	....	.....	.....	....	.....	....	1	.....	....	1	1	.....
....	....	....	....	....	....	....	....	.....	1	....	1	....	2	1	1	....	1	1
....	....	1	....	....	....	....	....	.....	1	....	.....	....	1	1	....	....	1	.....
....	....	....	....	....	....	....	....	.....	2	....	.....	....	2	2	....	....	1	2
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....	....	1	....	....	....	....	..	1	.....	....	.....	....	1	5	1	....	2	1
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....	....	....	....	....	....	....	1	2	.....	1	4	1	3	2	....	....	1	1
...	....	....	....	..	....	...	....	2	5	....	1	1	2	2	1	1	1	2
....	....	....	....	....	....	....	....	.....	.....	....	1	...	2	1	....	....	1	.....
....	....	....	....	....	....	....	....	1	.....	....	.....	....	.....	.....	....	1	....	1
....	....	1	....	....	1	1	2	25	23	4	25	18	34	33	10	20	34	33
....	....	1	2	3	1	1	4	43	44	7	47	36	62	68	24	20	41	43
....	....	....	....	....	....	....	1	11	16	....	20	9	18	21	8	10	7	11
....	....	....	....	....	....	....	....	.....	2	....	.....	....	.....	.....	....	....	....	.....
....	....	....	....	....	....	....	....	.....	.....	1	1	....	.....	1	....	1	....	1
....	....	....	....	....	....	..	....	4	1	....	.....	....	1	1	2	1	2	1
....	....	....	....	....	....	....	....	.....	.....	....	.....	....	.....	1	....	1	....	.....
....	....	1	....	....	....	....	....	.....	.....	....	1	....	1	.....	....	1	1	1
....	....	....	1	....	....	....	....	1	1	1	.....	1	1	2	....	....	1	2
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....	....	....	....	....	....	....	....	2	2	....	.....	....	2	.....	1	1	1	.....
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....	....	....	....	....	....	....	....	.....	.....	....	1	1	.....	.....	....	....	....	1
....	....	....	1	3	1	1	3	26	19	5	22	23	34	33	13	4	27	25
....	....	1	1	2	....	4	3	34	38	4	34	26	55	50	16	17	27	24
..	....	....	....	2	....	3	....	6	6	1	4	4	5	3	1	2	5	1
....	....	....	....	....	....	....	....	1	3	....	.....	1	3	2	1	1	2	2
....	....	....	....	....	....	....	....	.....	.....	....	1	1	1	2	2	....	1	1
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....	....	....	....	....	....	....	....	.....	1	....	.....	....	2	.....	....	1	1	1
....	....	....	....	....	....	....	....	1	2	....	2	....	.....	1	....	....	....	2
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....	....	....	....	....	....	....	....	1	.....	....	1	....	2	.....	....	1	1	.....
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....	....	....	....	....	....	....	....	2	4	....	3	1	1	.....	....	1	1	2
....	....	....	....	....	....	....	....	.....	2	....	.....	2	1	.....	....	....	....	1
....	....	....	1	....	....	....	....	.....	2	....	.....	....	.....	.....	....	1	....	1
....	....	....	....	....	....	....	....	1	1	....	1	....	.....	.....	....	....	1	.....
....	....	....	....	....	....	1	3	18	16	2	19	16	37	36	9	10	15	12
....	....	5	3	5	1	10	19	103	99	14	78	58	93	126	49	54	70	80
....	....	1	1	1	....	4	8	50	50	4	22	14	32	50	25	25	28	38
....	....	....	....	....	....	1	....	.....	.....	...	.....	....	.....	1	1	....	....	.....
....	....	....	....	....	....	....	1	1	1	....	1	....	1	.....	....	....	....	.....

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
LAKE ONTARIO AND WESTERN DISTRICT—(*Continued*)								
NORTH TONAWANDA	9,000	8	11.00	2	25.0	125.00	....	1
LOCKPORT	16,088	20	15.00	5	25.0	50.00	....	....
NIAGARA FALLS	16,060	17	12.75	3	17.7	176.50	....	2
Medina	4,500	4	11.00	1	25.0	.....	....	....
Albion	4,536	8	21.10	1	12.5	125.00	....	....
Brockport	3,742	3	10.00	0	.....	.....	....	....
ROCHESTER	175,000	159	10.70	28	17.6	100.63	1	1
Palmyra	4,173	5	14.50	0	.....	.....	....	....
Newark	4,600	3	8.00	0	.....	.....	....	....
Lyons	6,127	9	17.50	2	33.3	222.20	....	....
Clyde	3,000	7	25.00	1	12.8	.....	....	....
OSWEGO	22,000	21	11.45	2	9.5	45.00	....	1
Fulton	4,214	6	17.10	1	16.7	166.67	....	....
Richland	3,637	7	23.00	1	14.2	.....	....	....
Rest of district	231,090	241	12.40	23	9.2	46.00	3	2
Totals for the state	7,110,000	9,556	16.00	2,366	25.0	78.75	71	98
Totals for April, 1899	.....	10,383	17.75	2,627	25.4	77.00	90	101
Totals for May, 1898	.....	9,748	17.15	2,690	27.0	93.09	81	86

REMARKS—The number of deaths reported for May is 9,556, or just the average for the 10 the average daily mortality having been reduced from 346 to 308. For the preceding four The decrease from last month is in acute respiratory diseases, from which there were 500 deaths from zymotic diseases.

Compared with May, 1898, acute respiratory diseases caused nearly 200 fewer deaths and cough, which from April to September, 1898, was unusually prevalent, and to a less degree in

The mortality of early life is less than in either of the months compared, there having ranged from 12.5 per cent of the deaths in the more rural health districts to 31.0 per cent in five years.

The zymotic mortality was 78.75 per cent of the total. Diphtheria, which caused the there were but 32 deaths from it outside the maritime district, of which 16 were reported the state, but there is no increase in its mortality over last month, 64 of the 76 deaths from it nine in the rest of the state. Typhoid fever had its largest relative prevalence in the Hudson showed less than 1 per cent. Grippe has practically ceased to prevail and cannot be said to

Smallpox caused five deaths in New York city, where 17 cases have been reported during has just been reported, and at Coeymans, Albany county, where four new cases, six in all, laborers from possibly infected southern localities are known to have developed the disease.

Except in the Adirondack region there was a deficiency of rainfall (one-half inch below barometer 30.03, normal temperature, and moderate westerly winds.

FOR MAY—(*Concluded*)

Zymotic Diseases																		
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Disease of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	....	1	1	....	1	2	.....	1	....	....	....	1
....	....	....	...	....	....	....	1	3	2	2	2	1	2	.....	....	1	2	4
.. ..	....	....	....	....	....	....	1	.....	1	....	6	1	1	4	...	1	....	.....
....	....	...	....	....	....	....	....	.....	1	....	.....	1	.....	.....	1	....	....	1
....	....	1	....	....	....	....	....	.....	1	....	.....	....	2	1	....	....	2	1
....	....	....	....	....	....	....	....	1	1	....	.....	....	.....	1	....	....	....	.....
....	....	2	....	3	....	4	5	17	14	3	17	14	14	21	11	11	9	13
....	....	....	....	....	....	....	....	1	.....	....	.....	....	2	.....	...	1	1	.....
....	....	....	....	....	....	....	....	.....	3	....	.....	....	.....	.....	....	....	....	.....
....	....	....	2	....	....	....	....	1	1	....	.....	....	1	2	....	....	1	1
....	....	....	....	....	....	....	....	.....	.....	....	1	2	1	1	...	1	....	1
....	....	....	....	....	....	....	....	1	4	1	1	1	3	3	....	2	2	1
....	....	....	....	....	....	....	1	.....	.....	...	.....	1	1	3	....	....	....	.....
....	....	....	....	....	....	....	....	1	.....	...	3	...	.....	1	....	1	....	1
.. ..	....	1	....	1	1	1	2	26	19	4	24	21	33	37	11	11	24	20
14	5	76	85	45	87	203	122	1,289	1,169	92	716	753	912	1,117	359	555	484	1,249
20	2	78	68	40	65	197	138	1,895	1,187	93	760	820	997	1,206	346	430	532	1,315
27	....	113	109	30	112	223	127	1,576	1,127	84	695	757	915	1,171	375	478	469	1,193

years past; it is 200 less than of last May—it is also 850 less than that of the preceding month, months the average daily mortality was 870. The death rate is reduced from 17.75 to 16.00. fewer deaths, and other local diseases caused 300 fewer deaths; there were also 50 fewer

the number of zymotic diseases was less by 150. The saving in zymotic deaths is in whooping scarlet fever and measles

been 250 fewer deaths under five years of age, and it is lower than the average for May. It the maritime, one-fourth of the deaths of the entire state having occurred under the age of

largest mortality, 203 deaths, has had the same relative prevalence for the past three months; from rural towns. Scarlet fever has been reported as prevalent in many localities throughout being reported from the metropolis. Measles caused 76 deaths in the maritime district and valley district, where 2.5 per cent of all deaths were caused by it, while the entire state have increased the mortality of the month.

the month; it is not known to exist elsewhere in the state except at Auburn, where one case have developed; no other localities similarly exposed by reason of importation of negro though this risk is being recognized.

the normal), low humidity (69%), only seven cloudy days on the average for the state, average

MONTHLY BULLETIN OF THE NEW

Abstract of reports of deaths and causes in the following

[Cities are printed in SMALL CAPS, villages

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
MARITIME DISTRICT. Totals	3,826,000	5,812	18.47	2,441	41.1	178.0	45	97
CITY OF NEW YORK. Totals	3,550,053	5,430	18.64	2,327	42.8	180.7	43	94
BOROUGH OF MANHATTAN	1,953,569	2,914	18.14	1,207	41.4	145.1	27	10
BOROUGH OF THE BRONX	163,537	300	22.32	95	31.7	156.7	2	1
BOROUGH OF BROOKLYN	1,213,548	1,925	19.25	916	47.7	239.5	13	13
BOROUGH OF QUEENS	134,139	209	18.96	81	38.7	191.4	....	....
BOROUGH OF RICHMOND	67,260	82	14.81	26	31.7	122.0	....	....
Oyster Bay	15,000	8	6.40	1	12.5	.....	....	....
Hempstead	24,000	42	21.00	11	26.2	142.8	....	1
North Hempstead	8,736	19	25.91	11	58.0	210.5	....	....
Southold	7,671	7	10.95	1	14.2	142.8	....	....
Sag Harbor	3,000	2	8.00	0	.....	.....	....	....
Huntington	8,253	11	16.00	2	18.2	90.9	....	....
Brookhaven	13,500	13	11.55	3	23.0	153.8	....	....
YONKERS	42,000	57	16.51	19	33.3	157.9	....	....
Greenburgh	12,060	22	22.00	5	22.7	136.4	....	....
MOUNT VERNON	15,513	25	19.34	7	28.0	80.0	....	....
Port Chester	7,547	8	12.72	4	50.0	250.0	....	....
Sing Sing	9,500	5	6.32	2	40.0	.....	....	....
NEW ROCHELLE	10,000	22	26.40	6	27.3	136.3	....	1
Peekskill	10,000	6	7.20	1	16.7	166.7	....	....
White Plains	4,042	7	21.00	3	42.8	.....	....	....
Rest of district	90,000	128	17.35	38	30.4	152.0	2	1
HUDSON VALLEY DISTRICT. Totals	700,000	881	14.60	202	23.1	127.6	4	18
ALBANY	100,000	154	18.72	60	38.9	162.3	1	9
COHOES	25,000	44	21.20	16	36.3	250.0	....	....
TROY	65,000	121	22.62	31	25.5	165.0	2	2
WATERVLIET	14,000	23	21.42	6	26.1	217.4	....	1
Green Island	4,500	3	8.00	1	33.3	.....	....	....
Lansingburg	12,000	15	15.00	3	20.0	.....	....	....
Hoosick Falls	7,014	4	6.36	1	25.0	250.0	....	....
RENSSELAER	5,000	7	10.50	2	28.5	.....	....	....
COXSACKIE	3,824	3	9.41	1	33.3	.....	....	....
Catskill	5,000	4	9.60	0	.....	.....	....	....
HUDSON	10,000	7	8.40	3	42.8	285.7	....	....
KINGSTON	25,000	29	14.12	6	20.7	138.0	....	....
Ellenville	3,000	.....	.....	.....	.....	.....	....	....
Marbletown	2,689	5	16.25	0	.....	.....	....	....
Rosendale	6,125	4	8.00	0	.....	.....	....	..
Esopus	5,035	5	12.00	1	20.0	.....	....	....
Saugerties	4,237	6	17.10	1	16.7	333.3	....	....
POUGHKEEPSIE	25 000	41	20.00	7	17.0	50.0	....	....
Fishkill	12,000	20	20.00	2	10.0	150.0	...	1
Wappinger Falls	3,718	2	6.50	1	50.0	.....	....	....
NEWBURGH	36,000	27	9.12	5	18.6	74.0	....	....
Port Jervis	9,327	10	.....	1	.....	.....	....	....
MIDDLETOWN	12,000	17	17.00	3	18.0	60.0	....	....
Warwick	6,000	5	10.00	0	.....	.....	....	....
Goshen	4,646	9	23.72	2	22.2	222.2	....	....

YORK STATE BOARD OF HEALTH

districts, cities, villages and towns during June, 1899

In *italics* and towns in Roman type]

Zymotic Diseases																		
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of the circulatory system	Diseases of the nervous system	Cancer	Accidents and violence	Old age	Unclassified
18	7	65	72	17	46	188	555	638	680	46	604	468	330	534	204	413	111	794
14	7	61	71	16	41	178	526	618	577	42	567	449	285	477	194	389	99	759
6	....	34	42	10	27	88	179	367	317	23	313	244	145	235	114	231	57	436
....	7	7	5	....	1	11	12	25	78	4	22	26	12	36	6	17	2	25
4	...	17	24	5	10	71	304	203	163	6	199	153	106	171	63	114	30	257
4	....	3	....	....	....	6	27	18	15	....	24	22	15	28	7	13	6	21
....	....	....	....	1	3	2	4	5	5	....	9	4	7	7	4	14	4	13
....	....	....	....	....	....	....	....	2	....	....	1	....	3	1	....	1	....	....
2	....	1	....	....	....	....	2	3	7	....	6	2	2	5	4	2	1	4
...	....	....	....	....	....	....	4	1	....	....	3	1	2	1	....	3	1	3
....	....	....	....	1	....	....	....	1	2	....	....	1	....	....	....	....	1	1
....	....	...	....	....	....	....	...	....	....	...	....	....	1	....	....	1	....	....
....	....	....	....	....	....	1	....	1	2	....	1	3	....	1	1	....	....	1
....	....	1	....	....	....	1	7	5	8	....	3	2	7	7	2	4	1	9
....	....	....	....	....	....	2	1	3	2	....	3	1	3	2	....	2	1	2
....	....	....	....	....	....	....	2	5	3	....	4	1	1	3	1	2	1	2
....	....	....	....	....	....	....	2	.....	1	....	2	1	.....	1	....	....	....	1
....	....	....	....	....	....	....	....	.....	.....	....	2	...	2	.....	.....	....	....	1
2	....	....	....	....	....	....	....	1	1	....	.....	3	2	5	2	2	....	3
....	....	....	....	....	....	....	1	1	2	....	.....	1	1	.....	.....	.....	.....	.....
....	....	....	....	....	....	....	....	.....	.....	....	3	...	.....	1	....	....	2	1
....	....	2	1	....	4	1	9	9	22	4	9	3	10	26	1	7	3	14
2	....	1	16	6	4	14	46	51	118	7	59	57	91	143	31	54	65	94
....	....	....	....	1	2	1	11	13	21	1	6	10	16	20	4	8	7	23
....	....	....	7	....	....	1	3	3	7	....	.....	6	4	3	1	3	1	5
....	....	....	1	1	..	2	12	7	23	....	7	7	10	15	7	6	5	14
....	....	....	....	....	....	1	3	.....	5	1	1	1	1	2	1	3	....	3
....	....	....	....	....	....	....	....	1	....	....	.....	1	.....	.....	.....	.....	....	1
....	....	....	....	....	....	....	....	2	1	....	1	3	.....	4	....	....	2	2
....	....	....	....	1	....	....	....	.....	.....	....	.....	.....	.....	1	1	....	....	1
....	....	....	....	....	....	....	....	.....	.....	....	3	1	1	.....	....	....	1	1
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....	....	....	....	....	....	....	....	.....	1	....	.....	....	1	1	....	....	1	.....
....	....	....	2	....	....	1	3	1	6	1	1	3	1	1	....	....	1	1
....	....	....	....	....	....	....	....	.....	.....	....	.....	.....	.....	4	....	2	3	4
....	....	....	....	....	....	....	....	1	2	....	1	1	.....	.....	....	....	....	.....
....	....	....	....	....	....	....	....	.....	.....	....	1	....	1	.....	....	1	....	1
....	....	....	....	....	....	....	....	1	.....	....	1	....	1	1	....	....	2	.....
....	....	....	....	1	....	1	....	.....	.....	....	1	....	2	1	....	....	....	.....
....	....	....	....	....	1	1	....	3	6	....	2	1	7	10	1	3	3	3
....	....	....	....	....	....	3	....	.....	5	1	2	1	3	3	....	1	....	....
....	....	....	....	....	....	....	....	.....	1	....	.....	.....	.....	1	....	....	....	.....
....	....	....	....	....	....	1	1	1	3	....	2	2	6	5	2	....	3	1
....	....	....	....	....	....	....	....	1	1	....	.....	.....	.....	2	2	3	1	.....
....	....	....	....	....	....	....	1	1	4	....	2	1	1	3	....	1	..	2
....	....	....	....	....	....	....	....	.....	1	....	.....	.....	.....	.....	....	3	1	.....
....	....	....	....	....	....	1	1	.....	1	....	1	1	.....	2	1	....	....	1

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
HUDSON VALLEY DIST.—(*Con.*)								
Montgomery	5,259	2	.....	0	.....	.....	....	....
Haverstraw	7,714	11	17.10	4	36.4	363.4	....	1
Nyack	5,608	8	17.14	4	50.0	125.0	....	....
Rampo	6,600	17	34.00	2	11.8	294.2	....	....
Rest of district	275,000	278	12.35	39	14.0	71.5	1	4
ADIRONDACK AND NORTHERN DISTRICT.								
Totals	390,000	351	10.86	66	19.1	80.5	4	7
WATERTOWN	17,000	15	10.60	4	26.7	133.3	....	1
Ellisburgh	4,228	3	8.52	1	33.3	333.3	....	....
Cape Vincent	3,000	1	4.00	0	.....	.....	....	....
Clayton	4,250	5	14.75	0	.....	.....	....	....
OGDENSBURG	12,000	14	14.00	1	7.1	142.8	....	1
Gouverneur	6,000	4	8.00	1	25.0	.....	....	....
Potsdam	4,000	7	21.00	2	28.5	.....	....	....
Canton	6,013	3	6.00	2	66.6	333.3	....	....
Malone	5,000	8	19.20	4	50.0	125.0	....	....
Plattsburg	6,400	12	17.15	2	16.7	.....	....	....
Glens Falls	12,500	13	12.48	3	23.0	.....	....	....
Whitehall	4,500	1	.....	0	.....	.....	....	....
Fort Edward	4,500	6	16.00	0	.....	166.7	....	....
Kingsbury	5,112	3	7.00	2	66.6	666.6	....	1
Granville	5,281	1	.....	0	.....	.....	....	....
Greenwich	4,500	6	16.00	1	16.7	166.7	....	....
Lowville	4,000	7	21.00	0	.....	.....	....	....
Rest of district	280,000	243	11.25	43	17.8	72.6	4	4
MOHAWK VALLEY DISTRICT.								
Totals	395,000	444	13.68	84	18.7	85.6	....	7
SCHENECTADY	28,791	44	18.60	14	31.8	159.0	....	....
Cobleskill	3,488	4	14.00	1	25.0	.....	....	....
AMSTERDAM	20,000	30	18.00	11	36.7	200.0	....	....
Fort Plain	3,000	5	20.00	0	.....	200.0	....	1
JOHNSTOWN	7,768	11	17.00	5	45.5	90.9	....	....
GLOVERSVILLE	15,000	8	6.40	1	12.5	125.0	....	....
LITTLE FALLS	12,000	11	11.00	0	.....	.....	....	....
Herkimer	5,150	2	.....	1	50.0	.....	....	....
Ilion	4,057	6	18.00	0	.....	166.6	....	1
UTICA	55,000	73	16.11	12	16.4	82.2	....	1
Whitestown	5,295	2	.....	0	.....	.....	....	....
ROME	14,000	17	14.57	1	6.0	.....	....	....
Boonville	3,512	3	10.10	0	.....	.....	....	....
Camden	3,675	6	20.00	5	83.3	500.0	....	....
Waterford	5,522	9	19.56	3	33.3	222.2	....	....
Mechanicville	3,000	4	16.00	1	25.0	.....	....	....
Ballston Spa	3,527	1	.....	0	.....	.....	....	1
Saratoga Springs	12,500	8	7.68	2	25.0	.....	....	....
Rest of district	193,000	200	12.67	27	13.3	45.0	....	3
SOUTHERN TIER DISTRICT								
Totals	495,000	414	11.85	66	16.0	70.0	1	5
BINGHAMTON	45,000	52	14.00	5	9.6	57.7	....	....
Owego	6,000	8	16.00	0	.....	.....	....	....
Candor	3,525	1	.....	0	.....	.....	....	....
Waverly	4,123	3	9.00	0	.....	.....	....	....
ELMIRA	40,000	30	9.00	8	26.7	133.3	....	1

FOR JUNE (*Continued*)

Zymotic Diseases																		
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrhœal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrhœal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
																		2
1			1				1	1			2		2				1	1
			1					1				1		1	2		1	1
			3			1	1	1	3		1	2		4				1
1		1	1	2	1	1	3	13	26	3	24	15	34	57	9	20	22	25
			1		3	4	9	29	41	5	30	16	34	48	19	23	26	52
					1			1	3		2		3			1	1	2
							1	1	1									
																	1	
									1		2			1				1
							1	4	4			1				1		2
									1		1		1					1
													1	2	1	1		2
					1	1								1				1
													3	1			1	3
								1			1	1	1	2	2		1	4
								1			1	1	1	2	2		1	4
								1										
			1			1		1			1		1	1		1		
														1				
							1		1				1	1		1		1
					1	2	6	13	30	5	21	12	21	35	16	17	19	31
			1	1	6	8	15	25	46	1	33	33	55	65	19	34	36	59
						4	3	3	3		3	1	5	3		4	3	7
					1		5	3	1	1	3		4	2		6		4
								1	1		1			1				
					1				2			1		2	1		2	2
							1		3				2				1	1
									1		1	1		2	1	4	1	
											1			1				
												1	2	2				
						4	1	5	7		9	5	9	10	4	3	4	11
								1						1				
								1	2		1	2	4	1		2	1	3
									1			1			1			
					2		1				1				2			
							2							3		1	1	2
											1	1			1			1
								1				2	1	1	1		1	1
			1	1	2		3	10	25		11	18	27	30	8	13	22	27
		1	4	2	3	4	9	24	36	5	37	29	51	62	26	37	37	41
				1	1		1	6	7	1	4	2	4	11	3	6	4	1
									2				2		2		2	
														1				
									1		1						1	
							3	2	2	1	2	5	1	6		3	1	3

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
SOUTHERN TIER DIST.—(*Con.*)								
Horseheads	2,319	1	.....	1	.....	.....	....	....
HORNELLSVILLE	12,000	14	14.00	2	14.2	71.0	....	1
Bath	3,261	2	8.00	0	.....	.....	....	....
CORNING	10,095	14	16.75	3	21.4	142.8	....	2
Wellsville	5,082	6	14.40	0	.....	166.7	....	....
OLEAN	10,000	4	.. ....	2	.....	.....	....	....
Salamanca	2,700	.....	.....	.....	.....	.....	....	....
DUNKIRK	13,290	9	8.10	4	44.4	.....	....	....
JAMESTOWN	18,037	17	11.00	2	11.7	117.7	....	....
Westfield	3,000	2	8.00	1	50.0	.....	....	....
Fredonia	3,400	5	17.65	0	.....	.....	....	....
Rest of district	260,000	246	12.00	38	15.4	61.0	1	1
EAST CENTRAL DISTRICT Totals	415,000	406	11.50	44	11.0	58.7	2	2
SYRACUSE	120,000	121	12.26	17	18.5	74.4	2	1
Baldwinsville	3,040	.....	.....	.....	.....	.....	....	....
De Witt	5,188	1	.....	0	.....	.....	....	....
Cortland	8,600	6	8.40	0	.....	.....	....	....
Homer	3,000	1	.....	0	.....	.....	....	....
Oneida	6,100	6	12.00	0	.....	.....	....	....
Hamilton	4,110	9	24.00	1	11.1	.....	...	....
Cazenovia	3,803	2	6.32	0	.....	500.0	....	....
Brookfield	3,235	5	18.60	0	.....	.....	....	....
Norwich	6,000	5	10.00	1	20.0	200.0	....	....
Oneonta	8,000	8	12.00	3	37.5	.....	....	....
Worcester	3,070	2	10.00	0	.....	.....	...	....
Cooperstown	3,000	.....	.....	.....	.....	.....	....	....
Walton	4,811	4	10.00	1	25.0	.....	....	...
Delhi	3,000	5	20.00	0	.....	.....	....	....
Liberty	3,500	13	.....	1	7.7	.....	....	....
Rest of district	230,000	218	10.60	20	9.0	55.0	....	1
WEST CENTRAL DISTRICT Totals	314,000	308	11.75	38	12.5	56.5	2	....
AUBURN	30,000	35	14.94	7	20.0	200.0	1	....
ITHACA	13,460	11	9.80	1	9.0	90.9	....	....
Hector	4,833	4	10.00	0	.....	.....	....	....
Waterloo	4,350	5	13.80	0	.....	.....	....	....
Seneca Falls	6,500	3	.....	0	.....	.....	....	....
GENEVA	10,000	7	8.40	0	.....	.....	....	....
Canandaigua	5,868	4	8.20	1	25.0	.....	....	....
Manchester	4,181	3	8.80	2	66.6	.....	....	....
Phelps	5,150	10	23.80	0	.....	.....	....	....
Penn Yan	4,800	8	20.00	0	.....	125.0	1	....
Batavia	7,221	9	15.00	3	33.3	111.1	....	....
Dansville	3,758	5	16.00	0	.....	.....	....	....
Le Roy	3,000	.....	.....	.....	.....	.....	....	....
Warsaw	4,700	4	10.20	1	25.0	.....	..	....
Rest of district	212,000	195	11.10	22	11.8	86.0	....	....
LAKE ONTARIO AND WESTERN DISTRICT Totals	875,000	823	11.26	163	19.7	107.4	4	14
BUFFALO	360,000	305	10.31	81	26.5	150.0	3	5
TONAWANDA	9,000	7	9.33	1	14.2	142.8	....	1
Amherst	4,000	5	15.00	0	.....	.....	....	....

FOR JUNE—(*Continued*)

Zymotic Diseases																		
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	....	1	3	....	3	....	2	1	....	1	1	1
....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	1	....	1
....	....	....	....	....	....	....	....	....	2	1	3	....	....	3	1	....	....	2
....	....	....	....	1	....	....	....	1	....	....	1	1	2	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	3
....	....	....	....	....	....	....	....	1	....	....	....	....	2	2	....	....	....	4
....	....	....	1	....	....	....	1	....	1	....	4	1	4	....	1	....	3	1
....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	1
....	....	1	3	....	2	4	4	1	....	....	1	....	....	....	1	....	1	1
....	....	1	1	1	7	2	8	23	41	3	31	27	51	54	36	26	44	41
....	....	1	....	....	....	1	4	9	10	....	11	9	13	11	11	8	11	19
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....
....	....	....	....	....	....	....	1	....	....	....	1	....	1	1	1	....	1	1
....	....	....	....	....	....	....	....	....	....	....	2	....	....	2	....	....	2	....
....	....	....	1	....	....	....	....	....	....	1	1	1	1	1	2	....	1	1
....	....	....	....	....	....	....	....	....	1	....	....	....	1	2	1	....	....	....
....	....	....	....	....	....	1	....	....	1	....	....	....	1	2	....	....	....	....
....	....	....	....	....	....	....	....	....	....	1	....	....	1	1	1	1	1	2
....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	....	....	....	....
....	....	....	....	....	....	....	....	....	2	....	1	....	....	1	....	....	....	....
....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	1	....	2	....
....	....	....	....	1	7	....	3	17	20	1	15	17	31	31	17	17	24	16
1	....	1	1	....	1	7	4	20	20	3	18	15	46	62	21	15	29	23
....	....	1	....	....	....	3	2	2	3	....	2	1	5	3	2	1	1	3
....	....	....	....	....	....	....	1	....	1	1	1	....	3	4	....	....	....	1
....	....	....	....	....	....	....	....	1	1	....	....	....	....	....	....	....	2	....
....	....	....	....	....	....	....	....	....	....	....	1	1	1	1	....	1	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	1	....	1	....
....	....	....	....	....	....	....	....	1	1	....	....	1	....	1	....	1	1	1
....	....	....	....	....	....	....	....	1	1	....	....	....	....	1	1	....	1	1
....	....	....	....	....	....	....	....	1	1	....	....	....	....	....	....	....	....	1
....	....	....	....	....	....	....	....	1	1	....	....	....	1	2	2	3	....	....
....	....	....	....	....	....	1	....	1	2	....	....	....	2	....	....	....	1	1
....	....	....	....	....	....	....	....	1	1	....	3	1	1	....	....	....	....	1
....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	....	2	1
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	1	....	....	....	1	2	....	....	....	....
1	....	....	1	....	1	3	1	13	17	2	11	11	33	43	14	9	20	18
1	....	2	6	4	3	14	40	53	87	6	57	64	98	119	47	50	61	53
....	....	1	3	3	2	7	23	21	33	3	17	27	23	43	13	20	21	34
....	....	....	....	....	....	....	....	....	....	1	1	....	....	2	....	2	....	....
....	....	....	....	....	....	....	....	....	....	....	....	1	1	1	....	....	....	3

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
LAKE ONTARIO AND WESTERN DISTRICT (*Continued*)								
NORTH TONAWANDA	9,000	3	.....	1	33.3	.....	....	...
LOCKPORT	16,088	20	15.00	5	25.0	.....	....	...
NIAGARA FALLS	16,000	15	11.25	8	53.3	400.0	....	2
Medina	4,500	1	.....	0	.....	.....	....	....
Albion	4,536	7	18.48	0	.....	.....	....	....
Brockport	3,742	3	9.10	0	.....	.....	....	....
ROCHESTER	175,000	171	11.88	27	15.8	184.5	1	3
Palmyra	4,173	2	6.00	0	.....	.....	....	....
Newark	4,600	5	13.00	0	.....	.....	....	....
Lyons	6,127	12	23.50	1	8.4	83.5	....	1
Clyde	3,000	2	8.00	1	50.0	.....	....	....
OSWEGO	22,000	21	11.45	3	14.3	95.2	....	1
Fulton	4,214	.....	.....	.....	.....	.....	....	....
Richland	3,637	....	.....	.....	.....	.....	....	....
Rest of district	231,000	243	12.11	85	18.8	80.3	....	1
Totals for the state	7,110,000	9,483	16.10	3,104	33.0	145.6	69	80
Totals for May, 1899	.....	9,556	16.00	2,366	25.0	78.7	71	93
Totals for June, 1898	.....	8,687	16.00	2,558	30.0	122.5	109	70

REMARKS—June, next to November, is the month of least mortality in this state; during there having been over 10,000 deaths on the average in each of the other months. The num cold weather, especially acute respiratory diseases, or the early incidence of hot weather 9,805, a difference of 1,400 deaths. This current month 9,483 deaths have been reported, or

Diarrheal diseases are reported as causing 686 deaths. This is nearly double that of June, reported June mortality from 372 in 1898 to 1,112 in 1899. There is customarily a sudden rise The June increase in diarrheal mortality is, however, confined to the large cities and almost being nearly double that of June last. Diarrhea increases in the urban population early in continues into September.

Acute respiratory diseases caused 883 deaths, about the same as in June, 1898, and 500 less cause has been 1,000, but it has varied between 750 and 2,000 in different years, chiefly, how-

The mortality of early life increased from 25 per cent of the total in May to 33 per cent in Whooping cough increased to 73 deaths and caused deaths in all the sanitary districts. 1. The outbreak at Coeymans is suspended, but it appeared extensively under similar these laborers. At Niagara Falls and also at Weedsport cases at first mistaken for chicken-

The mean temperature for the month was 67.5°, about 1° above the normal, with average deficiency in rain fall and the atmospheric conditions generally were uniform throughout the

Typhoid fever in New York state in 1898—The public press has quite generally recognized 1898, but no effort has yet been made, we believe, to find in what localities the disease was tion to the statistics of New York state, and some results of an analysis of the figures may from typhoid fever with the population; but there has been no general count of the people be accepted without reserve, and the deaths, at any rate in the rural districts, are not all compare the deaths from typhoid fever with those from all causes. It may be noticed at the records are kept is higher than in certain countries of western Europe. This appears from

Deaths from typhoid fever in 100,000 people (average of the decade, 1880-1889)—Norway, New Jersey, 47; Rhode Island, 50.

In the United States as a whole in the last census year there were 335 deaths from typhoid in the North Atlantic states than elsewhere in the country. In the so called registration deaths in each 10,000 were due to typhoid fever. This gives a basis upon which the figures any number above 187 is above this region's high average.

Typhoid fever is usually more prevalent in rural districts than in cities. For example in 10,000 total deaths, but in the cities only 177. Hence we shall expect to find our cities with a deaths due to typhoid fever in each city of New York having over 20,000 people in 1890, and and for convenience the cities have been grouped into three classes—those having a decidedly higher rate. The rate in the small towns and country districts was, in 1897, 149,

Deaths from typhoid fever in 10,000 total deaths—Cities having a low rate in 1897—Auburn, 1898, 126; Utica, 1897, 98; 1898, 142.

Cities having a moderate rate in 1897—Syracuse, 1897, 142; 1898, 276; Troy, 1897, 166; 1898,

Cities having a high rate in 1897—Elmira, 1897, 202; 1898, 345; Binghamton, 1897, 261; 1898,

In most of the cities, as in the state at large, there was, in 1898, a decided increase of districts the same year. Rochester and Yonkers alone had a decrease, but in New York and basis of last year's returns should rank with Elmira, Binghamton and Albany as unusually

FOR JUNE—(*Concluded*)

Zymotic Diseases																			
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	....	.....	.....	....	1	....	.....	1	....	....	1	.....
....	....	....	....	....	....	....	....	.....	3	....	3	....	6	3	....	3	2	.....
....	....	....	1	....	....	....	3	2	1	....	1	1	.....	1	....	....	....	3
....	....	....	....	1	....	....	....	.....	.....	....	.....	....	.....	.....	.....	.....	.....	.....
...	....	....	....	....	...	....	...	.....	1	....	1	1	.....	.....	1	1	2	.....
....	....	....	....	....	....	....	....	.....	.....	....	.....	2	.....	.....	1	....	....	.....
....	....	1	2	....	....	5	11	10	18	....	13	15	26	21	10	15	6	12
....	....	....	....	....	....	....	....	.....	.....	....	.....	....	.....	.....	1	....	1	.....
....	....	....	....	....	....	....	....	.....	3	....	.....	1	1	.....	....	....	....	.....
....	....	....	....	....	....	....	....	1	1	....	.....	....	2	1	1	2	1	2
....	....	....	....	....	....	....	....	1	1	....	.....	....	.....	.....	....	....	....	.....
1	....	....	....	....	....	....	....	1	3	1	3	1	.....	5	2	1	....	2
....	....	....	....	....	....	....	....	.....	.....	....	.....	....	.....	.....	....	....	....	.....
....	....	....	....	....	....	....	....	.....	.....	....	.....	....	.....	.....	....	....	....	.....
....	....	....	....	....	1	2	4	17	23	1	17	15	39	36	19	15	25	28
22	7	71	102	31	73	236	686	883	1,028	76	869	709	746	1,087	408	661	409	1,192
14	5	76	85	45	87	208	122	1,359	1,169	93	716	763	912	1,117	359	555	484	1,245
22	....	82	99	17	111	174	872	857	1,007	96	783	656	780	1,081	367	581	361	1,068

the past 10 years there has been an average mortality in June of 9,023, in November of 8,256, ber of deaths in June has varied in different years according to the continuance of diseases of (diarrheal) diseases. In 1889 the lowest mortality occurred, 8,370, and in 1894 the highest, about 400 in excess of the average of the past 10 years.

1898, but is below the averag- (730) for the month. This cause of death has varied in its from the reported deaths in May of about 600, which is not far from the current increase. entirely to New York city, whence all but 130 of the total deaths are reported, its mortality the summer, while in the rural population its increase comes late in the summer and even

than in May, which is the average decrease. For 10 years the average mortality from this ever, from the persistence of grippe epidemics.

June. The zymotic mortality, half of which was diarrheal, was 14.5 per cent of all deaths. Smallpox caused seven deaths in New York city, eight cases having been reported since June conditions (negro brickyard laborers from Virginia) at Athens, but not extending beyond pox have been discovered, the sources of which are not yet clear.

highest of 84°; rain fall was 2.39 inches (average 3.71), and half the days were clear. The state.

that an unusual number of deaths from typhoid fever occurred throughout the country in especially prevalent. The recent epidemics in Newark and Philadelphia have drawn attenbe of public interest. The best method is undoubtedly to compare the number of deaths of New York state since February, 1892, the local estimates of population are not always to reported. So it seems best to follow the method employed by the United States census and start that the death rate from typhoid fever in the states of this country where careful the following compiled from the figures in the eleventh census:

11; England, 21; Scotland, 25; Prussia, 38; Austria, 72; Connecticut, 38; Massachusets, 45;

fever in each 10,000 deaths reported—i. e., 8⅛ per cent. But the disease is much less common states, including New York, New Jersey, Delaware and all New England but Maine, only 187 that follow may be judged. Any number above 335 is above the country's very high average;

the rural districts of the registration states in 1890 there were 208 deaths from it in each lower rate than the rest of the state. We have found for 1897 and 1898 the proportion of also the proportion for the remainder of the state. The rates are given in the following, rate below that of the rural districts, those having about the same rate and those having a and in 1898, 17¼ deaths in 10,000.

1897, 43; 1898, 50; Yonkers, 1897, 67; 1898, 87; New York, 1897, 77; 1898, 103; Brooklyn, 1897, 83;

397; Buffalo, 1897, 158; 1898, 214; Rochester, 1897, 168; 1898, 87.

479; Albany, 1897, 417; 1898, 494.

deaths from typhoid fever, and six of the 12 cities had a higher rate than the rural Auburn the increase was slight. The most remarkable increase was in Troy, which on the exposed to the disease.

MONTHLY BULLETIN OF THE NEW

Abstract of reports of deaths and causes in the following

[Cities are printed in SMALL CAPS, villages in *italics* and towns in Roman

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
MARITIME DISTRICT Totals	3,826,000	7,324	23.5	3,759	51.3	265.3	40	46
CITY OF NEW YORK Totals	3,550,053	6,808	22.6	3,550	52.2	226.2	38	44
BOROUGH OF MANHATTAN	1,953,559	3,571	21.0	1,841	51.6	228.2	27	21
BOROUGH OF THE BRONX	163,587	397	28.5	200	50.0	245.0	2	....
BOROUGH OF BROOKLYN	1,231,548	2,381	22.5	1,268	53.1	312.6	9	22
BOROUGH OF QUEENS	134,139	295	25.8	165	55.2	302.5	....	...
BOROUGH OF RICHMOND	67,260	164	28.7	81	49.4	250.0	....	1
Oyster Bay	15,000	25	20.0	10	40.0	240.0	....	....
Hempstead	44,000	41	20.5	15	12.2	244.0	....	....
North Hempstead	8,726	18	24.5	9	50.0	555.5	....	....
Southold	7,671	5	.....	1	20.0	.....	....	...
Sag Harbor	3,000	8	32.0	1	12.5	250.0	....	....
Huntington	8,253	11	16.0	2	18.2	182.8	....	....
Brookhaven	13,500	29	25.7	4	13.7	103.8	....	....
YONKERS	42,000	87	24.3	51	58.6	402.5	2	2
Greenburgh	12,000	20	20.0	8	50.0	500.0	....	....
MOUNT VERNON	15,513	30	23.2	10	33.3	133.3	....	....
Port Chester	7,547	15	23.4	9	60.0	466.7	....	....
Sing Sing	9,500	12	15.5	6	50.0	416.5	....	....
NEW ROCHELLE	10,000	17	20.4	8	47.0	235.0	....	....
Peekskill	10,000	21	25.2	5	23.8	238.0	....	....
White Plains	4,042	16	.....	10	62.5	312.5	....	....
Rest of District	90,000	161	23.7	58	36.2	300.0	....	....
HUDSON VALLEY DISTRICT Totals	700,000	959	16.0	324	33.7	214.6	5	14
ALBANY	100,000	156	18.4	50	32.0	147.4	1	2
COHOES	25,000	87	17.5	22	59.5	379.0	....	1
TROY	65,000	134	24.3	64	47.7	358.2	3	2
WATERVLIET	14,000	29	24.5	14	49.2	310.3	....	1
Green Island	4,500	14	37.3	6	42.8	214.2	....	....
Lansingburgh	12,000	15	15.0	8	53.3	400.0	....	....
Hoosick Falls	7,014	9	15.5	1	11.1	222.2	....	....
RENSSELAER	8,000	10	15.0	3	30.0	100.0	....	....
COXSACKIE	3,824	4	12.6	0	....	.....	....	....
Catskill	5,000	8	19.0	1	12.5	125.0	....	....
HUDSON	10,000	12	14.4	3	25.0	83.3	....	....
KINGSTON	25,000	47	21.0	18	40.0	234.0	....	1
Ellenville	3,000	7	28.0	1	14.3	142.8	....	...
Marbletown	3,689	1	.....	0	.....	.....	....	....
Rosendale	6,195	9	17.8	1	11.1	333.3	....	1
Esopus	5,035	9	21.5	4	44.4	111.0	....	....
Saugerties	4,237	3	8.5	1	33.3	333.3	..	....
POUGHKEEPSIE	25,000	35	16.5	15	42.8	228.6	1	1
Fishkill	12,000	24	24.0	6	25.0	208.3	....	....
Wappinger Falls	3,718	6	19.4	3	50.0	500.0	....	..
NEWBURGH	36,000	37	12.2	12	32.4	216.2	...	2
Port Jervis	9,327	17	21.9	1	6.0	.....	....	....
MIDDLETOWN	12,000	10	10.0	4	40.0	100.0	....	....
Warwick	6,000	10	20.0	4	40.0	20.0	...	1
Goshen	4,646	10	25.8	2	20.0	.....	....	....

YORK STATE BOARD OF HEALTH

districts, cities, villages and towns during July, 1899

type. For boundaries of *Sanitary districts* see Annual summary]

Zymotic Diseases								Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of the urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases											
27	1	33	55	17	73	160	1,491	542	709	38	1,106	489	313	494	214	372	124	981
25	1	29	52	17	66	158	1,358	530	659	37	1,060	466	269	431	193	336	101	938
11	....	11	37	7	41	75	585	323	338	27	549	265	135	221	166	215	57	520
1	1	3	3	....	1	7	80	24	78	2	53	19	7	23	9	23	7	55
9	....	14	12	8	21	72	577	149	214	6	390	149	102	141	66	74	29	317
3	....	1	....	2	2	4	78	26	17	2	47	18	14	30	5	14	5	27
1	....	....	....	....	1	....	38	8	12	....	23	15	11	16	7	10	3	19
....	....	....	....	....	....	....	6	3	1	....	2	2	2	3	....	1	3	2
....	....	....	....	....	....	....	10	.....	3	....	7	2	6	3	1	3	1	5
1	....	....	....	....	....	....	9	.....	2	....	.....	....	1	.....	1	1	1	2
....	....	....	....	....	....	....	....	.....	.....	....	.....	....	2	2	....	....	....	1
1	....	....	....	....	....	....	1	.....	.....	....	.....	1	1	1	....	....	2	1
....	....	....	....	....	....	....	2	.....	.....	....	.....	1	.....	6	....	....	2	....
....	....	....	....	....	....	....	3	1	6	....	2	2	1	3	1	3	5	2
....	....	....	1	....	1	...	6	1	2	....	4	1	1	2	....	....	....	1
....	....	....	2	....	....	....	2	.....	4	....	1	....	3	5	4	1	3	5
....	....	....	....	....	....	....	7	.....	2	....	2	....	.....	2	....	1	....	1
....	....	....	....	....	1	....	4	.....	.....	....	2	1	.....	1	2	....	....	1
....	....	....	....	....	....	....	4	.....	1	....	2	....	2	1	1	2	1	3
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....	....	3	....	....	5	...	40	6	14	1	15	8	17	21	7	10	4	10
6	....	3	9	1	5	12	151	42	106	8	71	59	71	135	24	60	52	125
....	....	3	..	....	....	3	14	10	15	1	11	14	12	28	2	11	10	19
....	....	....	1	....	....	1	11	4	3	....	2	1	1	2	....	1	....	9
....	....	....	4	....	....	....	39	9	21	....	5	4	6	16	....	11	1	13
....	....	....	....	1	....	1	6	2	5	....	1	3	3	2	....	....	....	4
....	....	....	....	....	..	1	2	2	3	....	1	1	.....	1	....	....	1	2
....	....	....	....	....	....	1	5	.....	1	....	.....	1	.....	1	2	....	....	4
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1	....	....	..	....	1	....	4	1	1	....	2	1	1	12	1	2	4	2
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1	....	....	....	....	....	....	2	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	1
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....	....	....	....	....	....	....	1	1	.....	....	1	....	2	2	....	....	1	2
...	....	....	....	....	1	....	.....	.....	.....	....	1	....	1	3	....	1	....	2
....	...	....	....	....	....	....	.....	.....	1	...	2	....	.....	4	1	....	....	2

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
HUDSON VALLEY DIST.—(*Con.*)								
Montgomery	5,259	6	13.5	5	83.3	666.6	....	....
Haverstraw	7,714	3	.....	2	.....	.....	....	....
Nyack	5,603	5	10.7	2	20.0	200.0	....	....
Ramapo	6,600	8	14.6	4	50.0	250.0	....	....
Rest of district	275,000	284	12.2	67	23.6	196.0	....	2
ADIRONDACK AND NORTHERN DISTRICT								
Totals	390,000	384	11.5	74	19.5	128.3	1	8
WATERTOWN	17,000	25	17.7	9	36.0	200.0	....	1
Ellisburgh	4,223	7	19.8	1	14.3	142.8	1	....
Cape Vincent	3,000	2	8.0	0	.....	.....	....	....
Clayton	4,250	4	11.3	0	.....	.....	....	....
OGDENSBURG	12,000	16	16.0	4	25.0	250.0	....	1
Gouverneur	6,000	6	12.0	0	.....	.....	....	....
Potsdam	4,000	5	15.0	0	.....	.....	....	....
Canton	6,018	6	12.0	0	.....	.....	....	....
Malone	5,000	5	12.0	4	80.0	400.0	....	....
Plattsburg	8,400	8	11.5	1	12.5	125.0	....	....
Glens Falls	12,500	14	13.5	4	28.5	214.3	....	....
Whitehall	4,500	1	.....	0	.....	.....	....	....
Fort Edward	4,500	8	21.3	1	12.5	125.0	....	....
Kingsbury	5,102	10	23.4	4	40.0	600.0	....	1
Granville	5,281	4	.....	0	.....	.....	....	....
Greenwich	4,500	2	.....	0	.....	.....	....	....
Lowville	4,000	2	6.0	0	.....	.....	....	....
Rest of district	280,000	259	11.3	46	18.0	160.0	....	5
MOHAWK VALLEY DISTRICT								
Totals	895,000	458	14.0	96	21.4	120.0	4	4
SCHENECTADY	28,791	35	14.1	16	45.7	371.4	....	....
Cobleskill	3,486	5	17.5	1	20.0	400.0	1	....
AMSTERDAM	20,000	26	15.6	9	34.5	344.5	....	1
Fort Plain	3,000	4	16.0	0	.....	.....	....	....
JOHNSTOWN	7,768	13	20.0	3	23.0	153.8	....	....
GLOVERSVILLE	15,000	20	16.0	4	20.0	250.0	....	....
LITTLE FALLS	12,000	11	11.0	1	9.0	.....	....	....
Herkimer	5,150	6	15.0	1	16.7	.....	....	....
Ilion	4,057	1	.....	0	.....	.....	....	....
UTICA	55,000	73	15.8	19	26.0	96.0	....	....
Whitestown	5,225	5	11.3	0	.....	200.0	....	....
ROME	14,000	16	13.7	2	12.5	187.5	1	1
Boonville	8,512	6	20.5	2	33.3	.....	....	....
Camden	3,675	4	13.0	0	.....	.....	....	....
Waterford	5,522	8	17.4	1	12.5	125.0	....	....
Mechanicville	3,000	.....	.....	.....	.....	.....	....	....
Ballston Spa	3,527	6	20.4	2	33.3	166.7	....	....
Saratoga Springs	12,500	26	24.5	5	19.2	119.2	1	....
Rest of district	192,000	193	12.5	30	15.5	108.5	1	2
SOUTHERN TIER DISTRICT								
Totals	425,000	363	10.0	51	14.4	107.0	2	7
BINGHAMTON	45,000	54	14.0	12	22.2	166.7	....	1
Owego	6,000	2	.....	0	.....	.....	....	....
Candor	3,525	2	.....	0	.....	.....	....	....
Waverly	4,123	5	14.5	1	20.0	200.0	....	....
ELMIRA	40,000	37	11.0	10	27.0	108.1	....	2

FOR JULY—(*Continued*)

Zymotic Diseases																		
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of the urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	1	3	.....	.....	....	1	....	....	.....	..	....	....	1
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4	....	....	3	...	3	1	32	10	24	4	26	19	28	35	12	18	23	40
....	....	1	....	1	4	3	30	19	33	1	35	30	47	49	18	24	38	42
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....	....	....	....	....	....	1	12	2	1	....	.....	2	2	4	2	4	2	3
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....	....	....	....	....	....	....	8	1	2	....	1	....	2	5	4	....	1	1
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....	....	....	....	....	....	....	2	.....	....	....	.....	1	3	4	....	....	....	3
....	....	....	....	....	....	....	5	1	2	....	1	1	3	2	....	1	2	2
...	....	....	....	....	....	....	.....	2	.....	....	2	1	2	.....	1	....	2	1
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....	....	1	....	....	2	....	15	9	20	3	24	16	15	24	11	16	20	14
....	....	1	1	1	4	2	21	15	31	4	33	25	37	46	22	26	30	35
....	....	....	....	....	3	1	4	5	4	....	3	3	8	10	...	5	4	3
...	....	....	....	....	....	....	.....	.....	.....	....	.....	....	1	.....	....	1	....	...
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....	2	....	....	....	....	....	5	1	6	....	6	3	.....	4	2	1	1	6

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic diseases per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
SOUTHERN TIER DIST.—(*Con.*)								
Horseheads	3,319	7	25.3	2	28.5	.....	....	....
HORNELLSVILLE	12,000	7	7.0	0	.....	166.7	....	1
Bath	3,261	1	.....	0	.....	.....	....	....
CORNING	10,025	6	7.0	1	16.7	166.7	1	....
Wellsville	5,033	.....	.....	.....	.....	.....	....	....
OLEAN	10,000	5	.....	0	.....	.....	....	....
Salamanca	3,700	6	19.4	1	16.7	.....	....	....
DUNKIRK	13,200	6	.....	4	.....	.....	....	....
JAMESTOWN	13,627	26	16 7	4	15.4	38.5	....	....
Westfield	3,000	3	12.0	1	33.3	333.3	....	....
Fredonia	3,400	6	21.6	0	.....	.....	....	....
Rest of district	250,000	190	9.0	15	8.3	72.2	1	2
EAST CENTRAL DISTRICT Totals	415,000	413	12.0	93	22.5	142.9	1	4
SYRACUSE	120,000	123	12.1	48	39.4	254.1	....	1
Baldwinsville	3,040	4	16 0	0	.....	.....	....	....
De Witt	5,182	11	.....	4	36.4	272.7	....	....
Cortland	8,600	7	9.8	0	.....	.....	....	....
Homer	3,000	3	12.0	0	.....	.....	....	....
Oneida	6,100	9	17.8	2	22.2	111.0	....	....
Ham lton	4,110	3	.....	1	.....	.....	....	....
Cazenovia	3,803	4	12.6	0	.....	.....	....	....
Brookfield	3,235	3	29.5	0	.....	.....	....	....
Norwich	6,000	5	10.0	1	20.0	200.0	....	....
Oneonta	8,000	4	6.0	0	.....	.....	....	....
Worcester	2,670	1	.....	1	.....	.....	....	....
Cooperstown	3,000	4	16.0	0	.....	.....	....	....
Walton	4,811	9	22.4	2	22.2	222.2	1	1
Delhi	3,000	4	16.0	0	.....	.....	....	....
Liberty	3,500	9	30.5	2	22.2	222.2	....	....
Rest of district	230,000	205	10.5	32	15.0	90.0	....	2
WEST CENTRAL DISTRICT Totals	325,000	325	13.5	36	11 2	84.0	....	3
AUBURN	35,000	44	14.8	11	25.0	205 0	....	1
ITHACA	13,460	7	6.2	1	14.3	.....	....	....
Hector	4,833	3	7.4	0	.....	.....	....	....
Waterloo	4,850	2	.....	0	.....	.....	....	....
Seneca Falls	6,500	3	.....	0	.....	.....	....	....
GENEVA	11,800	14	14.2	4	28.5	.....	....	....
Canandaigua	5,868	3	.....	0	.....	.....	....	....
Manchester	4,181	10	28.2	1	10.0	200.0	....	....
Phelps	5,150	6	14.0	2	33.3	333.3	....	....
Penn Yan	4,800	3	7.5	1	33.3	.....	....	....
Batavia	7,221	8	13.3	1	12.5	125.9	....	....
Dansville	3,758	5	16.0	0	.....	.....	....	....
Le Roy	3,000	5	20.0	0	.....	.....	....	....
Warsaw	4,700	4	10.2	0	.....	.....	....	....
Rest of district	212,000	208	11.5	15	7.5	60.0	....	2
LAKE ONTARIO AND WESTERN DISTRICT Totals	875,000	1,065	14.3	390	36.6	267.3	3	8
BUFFALO	360,000	486	15.9	226	46.3	394.2	1	5
TONAWANDA	9,000	14	18.7	3	21.4	71.4	....	....
Amherst	4,000	5	15.0	0	.....	.....	....	....

FOR JULY—(*Continued*)

Zymotic Diseases																		
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	...	....	.....	1	.....	....	2	....	1	1	....	....	1	1
....	....	....	....	....	....	....	.....	.....	.....	....	2	....	.....	1	1	1	....	1
....	....	....	....	....	...	....	.....	.....	1	....	.....	....	1	2	1	....	1	....
....	....	....	....	....	....	....	.....	.....	.....	....	.....	....	.....	.....	.....	....	....	....
....	....	....	....	....	....	....	.....	.....	.....	....	.....	....	.....	1	3	....	....	....
....	....	....	....	....	....	1	3	.....	1	....	.....	2	.....	.....	....	1	....	2
....	....	....	....	....	....	....	1	2	4	....	3	3	2	1	2	2	2	3
....	....	....	....	....	....	....	1	.....	1	....	.....	....	1	.....	....	....	....	....
....	....	....	....	....	....	....	.....	.....	1	....	1	....	2	1	....	....	....	1
....	....	1	1	1	1	....	6	6	13	4	16	14	36	22	14	12	22	17
....	....	....	....	1	4	2	47	25	30	6	39	27	36	38	28	37	38	50
....	..	....	....	....	2	....	28	7	9	2	11	5	8	9	6	15	6	14
....	....	....	....	....	....	....	.....	1	..	....	.....	....	.....	.....	2	....	....	....
....	....	....	....	....	....	....	3	2	.....	....	1	1	.....	.....	2	1	1	....
....	....	....	....	....	....	....	.....	1	.....	....	.....	1	1	2	1	1	....	....
....	....	....	....	....	....	....	.....	.....	1	....	1	....	1	.....	.....	....	....	2
....	....	....	....	....	....	1	.....	.....	1	....	1	1	.....	1	1	1	....	1
....	....	....	....	....	....	....	.....	.....	.....	....	.....	2	.....	.....	.....	....	....	....
....	....	....	....	....	....	....	1	1	.....	....	.....	.....	.....	1	1	....	....	....
....	....	....	....	....	....	....	.....	.....	.....	....	.....	1	1	1	3	1	1	....
....	....	....	....	....	....	....	1	.....	1	....	.....	.....	.....	1	...	1	....	1
....	....	....	....	....	....	....	.....	.....	1	....	.....	1	.....	.....	....	....	1	1
....	....	....	....	....	....	....	.....	.....	.....	....	.....	.....	.....	.....	....	....	....	1
....	....	....	....	....	....	....	.....	.....	.....	....	1	2	.....	.....	....	....	1	....
....	....	....	....	....	....	....	.....	1	1	....	1	2	.....	.....	....	....	2	....
....	....	....	....	....	....	....	.....	.....	.....	....	.....	1	.....	.....	1	...	2	....
....	....	....	....	....	....	1	1	1	4	....	.....	1	1	.....	....	....	....	....
....	..	....	....	1	2	....	13	11	12	4	23	9	24	23	11	17	23	30
....	....	....	1	....	....	4	19	9	34	3	34	18	38	57	23	19	31	33
....	....	....	....	....	....	....	8	2	6	1	6	2	4	3	3	2	4	2
....	....	....	....	....	....	....	.....	.....	1	....	1	1	1	2	....	....	....	1
....	....	....	....	....	....	....	.....	.....	.....	....	.....	.....	.....	1	1	1	....	....
....	...	....	....	....	....	....	.....	.....	.....	....	1	....	.....	.....	....	....	1	....
....	....	....	....	....	....	....	.....	.....	1	....	.....	....	.....	.....	1	1	....	....
....	....	....	....	....	....	....	.....	.....	1	....	1	1	1	1	2	1	....	6
....	....	....	....	....	....	1	1	.....	.....	....	1	1	1	.....	...	...	....	....
....	....	....	....	....	....	....	2	.....	.....	....	.....	....	2	1	1	....	3	1
....	....	....	....	....	....	....	.....	.....	.....	....	...	....	1	2	....	....	....	1
....	....	....	....	....	....	....	.....	.....	.....	....	1	....	.....	.....	....	1	....	1
....	....	....	....	....	....	....	1	.....	2	....	1	1	1	1	...	1	....	....
....	....	....	....	....	....	....	.....	.....	1	....	.....	1	.....	2	....	....	1	....
....	....	....	....	....	....	....	.....	.....	.....	....	.....	.....	.....	2	1	....	2	....
....	....	....	1	....	....	3	7	7	22	2	22	10	27	41	14	11	19	20
1	....	7	16	....	8	7	256	67	89	6	73	70	86	103	42	79	52	93
....	....	2	5	....	3	3	158	38	40	2	18	32	22	47	24	28	21	42
....	....	....	....	....	....	....	1	.....	2	....	1	....	.....	4	....	3	....	3
....	....	....	....	....	....	....	.....	.....	2	...	1	1	.....	.....	....	....	....	....

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
LAKE ONTARIO AND WESTERN DISTRICT—(*Continued*)								
NORTH TONAWANDA	9,000	8	10.7	3	37.5	125.0	....	....
LOCKPORT	16,088	21	15.7	10	47.6	285.7	....	1
NIAGARA FALLS	16,000	29	21.7	10	34.5	241.4	....	1
Medina	4,500	7	18 6	1	14.2	.....	....	....
Albion	4,536	2	.....	0	.....	.....	....	....
Brockport	3,742	5	16.0	1	20.0	.....	....	....
ROCHESTER	175,000	229	15.4	76	33.2	297.0	1	....
Palmyra	4,173	2	6.0	0	.....	.....	....	....
Newark	4,600	.....	.....	.....	.....	.....	....	....
Lyons	6,127	1	.....	0	.....	.....	....	....
Clyde	3,000	3	12.0	0	.....	.....	....	....
OSWEGO	22,000	22	12.0	6	27.2	227.2	....	....
Fulton	4,214	6	17.2	1	16.7	166.7	....	....
Richland	3,637	2	11.0	0	.....	.....	....	....
Rest of district	231,000	223	11.5	53	23.8	180.0	1	1
Totals for the state	7,110,000	11,291	18.7	4,819	42.6	238.7	56	94
Totals for June, 1899	.....	9,433	16.1	3,104	33.0	145.6	62	80
Totals for July, 1898	.....	11,441	20.6	4,945	43.0	255.6	68	89

THE DEATH RATE OF NEW YORK STATE 1887-1898

The State Board of Health has recently been making an effort to ascertain more accurately than heretofore the total number of deaths that occurred in the state for each calendar year from 1887 to the present time. The following table has been prepared by writing to the city boards of health in New York, Brooklyn, Buffalo, Albany and Yonkers, asking each to report the total number of deaths recorded for each of these calendar years. To the figures contained in the replies has been added in column seven the number of deaths annually in the rest of the state from which the certificates of death have to be returned to the State Board of Health. These numbers differ from those given in the monthly and annual summaries of this Board, because they include many certificates received too late to be included when the earlier tables were made up.

DEATHS IN NEW YORK STATE, 1887-1898.

1	2	3	4	5	6	7	8
Year	New York	Brooklyn	Buffalo	Albany	Yonkers	Rest of State	Total
1887	38,933	17,078	4,688	2,026	558	42,404	105,687
1888	40,[illegible]5	18,061	4,929	2,340	599	48,480	114,584
1889	39,679	18,480	4,328	2,276	573	47,021	112,357
1890	40,[illegible]3	19,827	5,024	2,279	588	50,234	118,055
1891	43,659	21,349	6,001	2,390	588	54,671	128,658
1892	44,329	20,807	5,697	2,564	741	57,250	131,388
1893	44,486	21,017	5,711	2,142	687	55,616	129,659
1894	41,175	21,183	5,280	2,180	796	52,769	123,383
1895	43,420	22,568	4,684	2,343	787	53,084	126,886
1896	41,622	22,501	4,452	2,106	758	54,013	124,452
1897	38,877	20,593	4,475	2,016	743	51,821	118,525
1898	40,433	21,989	4,533	1,903	752	52,969	122,584

It will be noticed that the largest number of deaths occurred about midway in the 12 year period, the years 1891, 1892 and 1893 having been very unhealthy. From this table, however, it is not clear which years were most healthy. To be sure, fewest deaths were recorded in 1887 and 1889, but the population of the state now is much greater than it was then and from a larger population one naturally expects a greater number of deaths. In order to decide what period was the most healthy, it is necessary to allow for this increase of population. To do this in New York state is unusually difficult because of the doubt concerning the

FOR JULY—(*Continued*)

Zymotic Diseases																		
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	...	1	.....	1	1	1	....	.....	1	1	2	....	....
....	....	....	2	....	....	...	3	2	.....	....	2	....	2	.....	....	5	2	2
....	....	....	...	...	....	1	5	2	1	....	6	1	2	2	....	4	2	2
....	....	....	....	..	....	....	.....	.....	1	..	1	2	1	....	....	1	....	1
....	....	..	....	....	....	....	.....	.....	.....	....	.....	1	.....	.....	....	.	....	1
....	....	....	....	....	....	....	.....	.....	.....	....	1	1	.....	.....	....	2	1	....
....	....	4	8	....	1	3	51	18	20	1	17	16	23	24	5	14	10	13
....	....	....	....	....	....	....	.....	.....	.....	....	.....	....	.....	.....	1	...	....	1
...	....	....	....	....	..	....	.....	.....	.....	....	.....	...	.....	.....	....	....	....	....
....	....	....	....	....	....	....	.....	.....	1	....	.....	....	.....	.....	....	....	....	....
....	....	....	..	....	....	....	.....	.....	.....	....	.....	....	2	.....	....	....	....	1
...	....	....	...	....	....	....	5	1	2	....	1	1	2	.....	1	4	3	2
....	....	....	....	....	....	....	1	1	1	....	.....	1	1	1	....	....	....	....
....	....	....	....	....	....	....	.....	.....	.....	....	.....	....	1	1	....	....	....	....
1	..	1	1	....	4	....	31	10	18	2	29	14	30	23	10	15	13	25
34	1	45	82	21	101	193	2,068	748	1,076	70	1,428	755	690	981	396	645	402	1405
22	7	71	102	31	73	286	686	883	1,028	76	869	709	746	1,087	403	661	409	1192
24	....	59	52	13	176	159	2,298	710	1,116	67	1,244	646	793	1,118	380	762	388	1279

accuracy of the last two enumerations of population, those of June 1890 and February 1892. Probably both of these enumerations outside of New York city and perhaps Brooklyn were sufficiently accurate for our purposes. But it is incredible that the true population of New York city could have been as reported in

June 1880	1,206,299
June 1890	1,515,301
Feb. 1892	1,801,739
April 1895	1,851,061

It could not have increased only 300,000 in 10 years, then nearly 300,000 in the next 20 months, and then only 50,000 in the following 38 months.

We must assume that the second of these four enumerations was an undercount, the third an overcount, and that the first and last counts were accurate. On this assumption the true population in 1890 may be estimated from that in 1880 and in 1895.

For our purposes, again, the arithmetical method of estimating population, that is, the method of assuming that the increase in any year was one-tenth the increase in the 10 years, will be accurate enough. In this way the population for the middle of each calendar year, i. e., June 30, has been estimated. By dividing the number of deaths recorded to each year by the estimated population in the middle of that year and multiplying the result by 1,000, the average number of deaths to 1,000 persons, or the death rate, is found and in that way the following table has been constructed:

DEATH RATES IN NEW YORK STATE, 1887-1898

Year	Estimated population	Total deaths	Death rate
1887	5,797,205	105,687	18.3
1888	5,898,053	114,584	19.4
1889	5,998,900	112,357	18.8
1890	6,099,747	118,055	19.4
1891	6,200,594	128,658	20.8
1892	6,301,441	131,388	20.9
1893	6,402,289	129,659	20.2
1894	6,503,136	123,883	19.0
1895	6,603,983	126,886	19.2
1896	6,704,830	124,452	18.6
1897	6,805,677	118,525	17.4
1898	6,906,555	122,584	17.7

This shows at once that the healthiest years in the 13 were not the first three, as might have been inferred from the third column, but the last two, because then the proportion of deaths to population was the lowest. Some further inferences from the table may perhaps be indicated in a subsequent issue of this Bulletin.

REMARKS.—The average number of deaths in July for the past 10 years has been 11,920, ranging from 10,800 in 1889 to 13,550 in 1892. For the same period the average monthly mortality for the rest of the year was 9,615, July being always the month of largest mortality in the year in this state. There has been reported for the present month 11,291 deaths, which is below the average by about 600. The number is slightly less than that of July, 1898.

There were 1,800 more deaths than in the preceding month of June, and the death rate has risen from 16.0 per 1,000 population annually to 18.7; there were 50 more deaths daily.

The infant-mortality (deaths under five years of age) was 4,819, against 3,100 in June, so that the increase in mortality was almost wholly infantile. Constituting 42.6 per cent of the total deaths, it was unusually low since the proportion has been nearly 50.0 per cent for the past 10 years. The mortality of early life in July has diminished both relatively and actually during much of that period; in July, 1892, there were 6,855 deaths under five years of age, which was 52.0 per cent of the total, since then there having been a decrease yearly, and the present mortality of 4,819 is the lowest of any year on our records for July. The infant mortality is high in those health districts having large city populations, more than half of the deaths in the Maritime occurring in early life and but 11.2 per cent in the West central district.

FOR JULY—(*Concluded*)

The zymotic mortality, likewise varied with the density of population, chiefly on account of the deaths from diarrheal diseases, which caused all but about 600 of the 2,700 deaths from these causes The diarrheal mortality was relatively higher in the Lake Ontario and Western district, where nearly one-fourth of all deaths were from this cause; in the Maritime district, one-fifth; while in the Southern tier district only one-twentieth of the deaths were diarrheal. It has been heretofore observed that these acute diarrheal diseases were largest in July in the cities, but largest in August in the rural districts. The death rate from all causes is lowest in the early summer months of the entire year in the country towns, the Southern tier district now having a death-rate of 10.0. A large mortality is reported from diseases of the digestive system, and likewise from diseases of the nervous system.

There were 645 deaths from accidents and violence; a number from various localities were from tetanus, due sometimes to toy pistols and firecrackers; there were two deaths from lightning stroke and many from drowning. Past years show more accidental deaths in July than in any other month.

Smallpox spread from Weedsport, prior to its recognition, to Auburn, Seneca Falls and Cato, a single case in each, with conspicuous illustrations of the protection by vaccination, and in all these places the end is practically reached; in Athens but one case remains; in New York city one death occurred and three cases have been reported during the month.

There was a normal average temperature of 72° for the month, with maximum of 94°; there were but six cloudy days and a total average rainfall of 3.03 inches, having been excessive about New York and deficient in the rest of the state.

MONTHLY BULLETIN OF THE NEW

Abstract of reports of deaths and causes in the following

[Cities are printed in SMALL CAPS, villages in *italics* and towns in Roman

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro spinal meningitis	Typhoid fever
MARITIME DISTRICT Totals	3,826,000	5,893	18.7	2,556	43.4	204.7	31	69
CITY OF NEW YORK Totals	3,550,053	5,363	18.4	2,345	43.7	191.3	31	63
BOROUGH OF MANHATTAN	1,958,569	2,861	17.8	1,231	43.0	169.5	23	27
BOROUGH OF THE BRONX	163,537	325	24.1	116	35.7	153.8	1	3
BOROUGH OF BROOKLYN	1,231,548	1,751	17.3	790	45.1	217.1	6	27
BOROUGH OF QUEENS	134,189	279	25.3	131	46.7	235.7	1	5
BOROUGH OF RICHMOND	67,260	147	24.0	77	52.4	285.7	....	1
Oyster Bay	15,000	25	20.0	9	36.0	240.0	....	....
Hempstead	24,000	50	23.0	22	47.8	413.0	....	....
North Hempstead	8,736	22	30.0	8	36.3	318.0	....	....
Southold	7,671	13	20.3	4	30.7	384.5	....	1
Sag Harbor	3,000	23	.....	9	39.1	565.5	....	....
Huntington	8,253	17	24.7	7	41.2	510.0	....	1
Brookhaven	13,500	18	15.2	7	35.3	235.3	....	....
YONKERS	42,000	80	23.0	36	45.0	287.5	....	....
Greenburgh	12,000	22	22.0	10	41.5	250.0	....	....
MOUNT VERNON	15,518	16	12.5	5	31.5	250.0	....	....
Port Chester	7,547	10	16.0	5	50.0	200.0	....	....
Sing Sing	9,500	11	14.0	4	36.4	363.4	....	....
NEW ROCHELLE	10,000	15	18.2	6	40.0	266.7	....	....
Peekskill	10,000	19	23.8	8	42.1	368.4	....	....
White Plains	4,042	17	.....	10	58.8	411.7	....	....
Rest of district	90,000	172	22.7	61	35.3	353.5	....	4
HUDSON VALLEY DISTRICT Totals	700,000	927	15.2	281	30.0	243.5	15	21
ALBANY	100,000	127	15.4	34	26.8	165.3	2	4
CCHOES	25,000	41	20.0	18	44.0	341.5	....	2
TROY	65,000	105	19.6	45	42.8	371.4	....	2
WATERVLIET	14,000	19	16.3	4	21.0	370.0	....	4
Green Island	4,500	6	16.0	2	33.3	333.3	....	....
Lansingburg	12,000	14	14.0	5	35.7	71.4	....	....
Hoosic Falls	7,014	3	.....	0	.....	.....	....	....
RENSSELAER	8,000	10	15.0	3	30.0	.....	....	....
Coxsackie	3,821	7	22.0	2	28.5	428.5	1	1
Catskill	5,000	8	19.2	1	12.5	.....	....	....
HUDSON	10,000	14	16.8	4	28.5	21 .8	....	....
KINGSTON	25,000	21	10.2	8	38.1	285.7	1	....
Ellenville	3,000	.....	.....	.....	.....	.....	....	....
Marbletown	3,689	2	6.0	1	50.0	.....	....	....
Rosendale	6,125	8	16.0	4	50.0	500.0	....	....
Esopus	5,035	7	16.8	3	42.8	142.8	....	....
Saugerties	4,237	5	14.2	2	40.0	400.0	1	....
POUGHKEEPSIE	25,000	35	17.0	9	25.7	172.0	....	....
Fishkill	12,000	25	25.0	9	36.0	400.0	....	1
Wappinger Falls	3,718	6	19.3	2	33.3	.....	....	....
NEWBURGH	36,000	31	10.5	10	32.2	226.0	2	....
Port Jervis	9,327	14	18.0	4	28.5	214.3	....	1
MIDDLETOWN	12,000	26	26.0	5	19.2	230.7	1	1
Warwick	6,000	14	28.0	4	28.5	357.1	....	....
Goshen	4,646	5	13.0	1	.....	.....	....	....

YORK STATE BOARD OF HEALTH

districts, cities, villages and towns during August, 1899

type. For boundaries of *Sanitary districts* see Annual summary]

Zymotic Diseases																		
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of the urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
17	....	17	33	10	86	134	809	451	689	49	737	448	317	464	207	320	189	867
14	....	17	33	10	77	128	652	426	689	47	702	418	278	417	189	300	115	812
6	....	6	19	7	42	66	289	250	374	26	370	270	188	209	103	168	67	423
1	....	1	1	1	2	8	53	25	68	6	85	17	11	34	8	19	11	41
6	....	8	7	2	27	49	250	129	193	9	226	106	102	137	69	85	25	286
1	....	2	6	....	4	5	42	15	18	6	44	14	18	29	7	19	7	36
....	....	....	....	....	2	....	39	7	13	....	27	9	4	8	2	9	5	21
....	....	....	....	....	..	....	6	4	2	....	2	2	3	3	1	1	....	1
....	....	....	....	....	3	....	16	2	2	....	3	4	6	4	3	2	1	4
....	....	....	....	....	....	1	6	2	3	....	1	....	.....	2	1	3	1	2
1	....	....	....	....	....	....	3	.....	.....	....	.....	.....	2	2	1	....	2	
....	....	....	....	....	....	....	13	.....	3	....	.....	1	3	.....	....	....	3	....
....	....	....	....	....	....	....	3	.....	1	....	1	1	4	.....	....	....	1	....
....	....	....	....	....	1	....	4	1	1	....	1	2	1	2	....	1	2	2
....	....	....	....	....	....	1	22	4	14	....	7	7	5	5	2	3	1	2
....	....	....	....	....	....	....	6	1	.....	....	.....	2	2	3	....	2	2	4
....	....	....	....	....	1	...	3	2	2	....	1	2	1	1	1	....	....	2
...	....	....	....	....	....	....	2	.....	1	....	.....	2	.....	1	....	...	1	1
1	....	....	....	....	....	....	3	.....	2	....	1	1	1	.....	..	....	1	1
....	....	....	....	....	....	1	3	2	2	....	1	....	2	1	....	....	1	2
....	....	....	....	....	1	1	5	.....	4	....	.....	1	1	3	...	1	....	2
....	....	....	....	....	....	....	7	1	1	1	.....	....	1	2	....	....	1	3
1	....	...	....	....	3	2	50	6	12	1	16	5	12	18	9	7	7	19
4	...	3	15	....	4	11	157	36	88	2	78	47	85	126	34	60	45	98
....	....	2	....	....	....	....	13	9	16	1	20	7	8	12	7	6	3	17
....	....	....	....	....	1	1	10	6	4	....	2	4	2	2	....	2	....	5
....	....	....	14	....	....	2	21	7	13	....	8	4	9	6	4	6	2	7
....	....	....	....	....	....	1	2	.....	1	....	2	1	1	1	....	3	1	2
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....	....	....	....	....	....	..	5	1	3	....	2	....	1	1	....	3	....	4
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1	....	....	....	....	....	1	4	.....	4	....	4	....	5	8	1	1	3	3
1	....	....	....	....	....	2	6	..	4	....	1	1	2	1	1	....	1	4
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SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro spinal meningitis	Typhoid fever
HUDSON VALLEY DIST.—(*Con.*)								
Montgomery	5,259	8	18.8	3	37.5	625.0	....	....
Haverstraw	7,714	.....	.....	.....	.....	.....	....	....
Nyack	5,603	5	10.0	3	60.0	600.0	....	1
Ramapo	6,600	11	20.0	5	45.5	454.5	....	....
Rest of district	275,000	330	15.0	91	25.3	204.0	5	4
ADIRONDACK AND NORTHERN DISTRICT								
Totals	390,000	413	12.7	140	33.4	268.3	5	10
WATERTOWN	17,000	31	22.0	17	54.8	548.2	1	1
Ellisburgh	4,223	5	18.2	1	20.0	.....	....	....
Cape Vincent	3,000	3	12.0	0	.....	.....	....	....
Clayton	4,250	7	19.7	3	42.8	142.8	....	....
OGDENSBURG	12,000	4	.....	1	.....	.....	....	1
Gouverneur	6,000	9	18.0	2	22.2	111.0	....	....
Potsdam	4,000	5	15.0	1	20.0	200.0	....	1
Canton	6,013	7	14.0	0	.....	.....	....	....
Malone	5,000	14	.....	8	57.0	357.0	....	....
Plattsburg	8,400	10	14.3	4	40.0	300.0	....	....
Glens Falls	12,500	17	16.3	8	47.0	411.7	1	....
Whitehall	4,500	3	.....	3	.....	.....	....	....
Fort Edward	4,500	3	8.0	1	33.3	.....	....	....
Kingsbury	5,112	5	12.0	0	.....	200.0	....	1
Granville	5,281	2	.....	0	.....	.....	....	....
Greenwich	4,500	9	24.0	3	33.0	222.2	....	....
Lowville	4,000	6	18.0	0	.....	166.7	....	....
Rest of district	250,000	273	11.5	88	31.5	255.7	3	6
MOHAWK VALLEY DISTRICT								
Totals	395,000	496	15.3	111	22.5	200.0	3	8
SCHENECTADY	28,791	30	12.7	10	33.3	133.3	....	....
Cobleskill	3,486	5	17.5	0	.....	.....	....	....
AMSTERDAM	20,000	14	8.5	4	28.5	71.4	....	....
Fort Plain	3,000	1	.....	0	.....	.....	....	....
JOHNSTOWN	7,768	17	26.3	7	41.2	300.0	....	....
GLOVERSVILLE	15,000	19	15.2	6	31.6	421.0	....	2
LITTLE FALLS	12,000	....	.....	.....	.....	.....	....	....
Herkimer	5,150	4	9.6	1	25.0	250.0	....	....
Ilion	4,057	9	27.0	4	44.4	222.2	....	....
UTICA	55,000	74	16.3	28	37.8	228.5	1	1
Whitestown	5,225	8	18.2	2	25.0	250.0	....	....
ROME	14,000	25	21.4	6	24.0	40.0	....	....
Boonville	3,512	4	13.7	0	.....	.....	....	....
Camden	3,675	6	18.0	1	16.7	.....	....	....
Waterford	5,522	12	.....	2	.....	.....	....	....
Mechanicville	3,000	8	24.0	4	50.0	250.0	....	....
Ballston Spa	3,527	1	.....	1	.....	.....	....	....
Saratoga Springs	12,500	33	20.0	10	31.5	375.0	1	1
Rest of district	192,000	226	14.3	35	15.5	172.5	1	4
SOUTHERN TIER DISTRICT								
Totals	425,000	482	13.7	116	24.2	229.2	1	11
BINGHAMTON	45,000	74	20.0	26	35.1	351.0	....	....
Owego	6,600	9	18.0	2	22.2	111.1	....	....
Candor	3,525	3	11.0	0	.....	.....	....	....
Waverly	4,123	5	14.8	0	.....	.....	....	....
ELMIRA	40,000	32	10.0	13	40.1	218 7	....	2

FOR AUGUST--(*Contind*)

Zymotic Diseases																	
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of the urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	1	4	.....	.....	....	.....	....	.....	.....	1	....	1	1
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2	....	....	....	....	2	2	60	10	29	1	28	17	38	61	11	25	27	30
....	....	....	....	1	5	2	88	13	41	4	29	18	46	42	13	17	37	42
....	....	....	....	....	2	....	13	.....	4	....	4	1	.....	.....	....	....	2	3
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....	....	....	....	....	....	....	3	1	1	....	.....	1	.....	2	1	....	1	....
....	....	....	....	....	....	....	6	.....	2	....	1	....	.....	2	1	....	....	4
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....	....	....	..	1	3	1	56	10	30	4	20	14	30	32	7	10	23	23
....	...	....	....	...	5	4	79	17	42	4	51	29	60	53	14	35	41	51
....	..	....	....	....	....	....	4	1	3	1	5	1	5	4	....	1	....	5
....	....	....	....	....	....	....	.....	.....	2	....	.....	1	.....	.....	....	1	1	....
....	....	....	....	....	1	....	.....	1	1	....	1	1	2	3	....	1	2	1
....	....	....	....	....	....	....	.....	.....	.....	....	.....	....	.....	.....	....	1	....	....
....	....	....	....	....	....	..	5	1	.....	....	1	....	2	.....	1	1	2	4
....	....	....	....	....	....	....	6	2	1	....	2	....	2	2	....	....	1	1
....	....	....	....	....	....	....	.....	.....	.....	....	.....	....	.....	.....	....	....	....	....
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....	....	....	....	....	....	1	14	2	9	....	5	2	8	9	3	5	3	11
....	....	....	....	....	..	....	2	.....	1	....	.....	1	2	.....	....	....	....	2
....	..	....	....	....	1	....	.....	1	3	....	2	....	6	3	1	2	5	1
....	....	....	....	....	....	....	.....	.....	1	....	.....	....	.....	.....	2	1	....	....
....	....	....	....	....	....	....	.....	.....	.....	....	1	....	1	.....	....	....	1	3
....	....	....	....	....	....	2	2	.....	1	....	2	....	1	.....	1	1	1	1
....	....	....	....	....	....	....	2	1	1	....	1	....	.....	1	....	1	....	1
....	....	....	....	....	....	....	1	.....	.....	....	.....	....	.....	.....	....	....	....	....
....	....	....	....	....	2	....	8	2	2	...	3	2	5	1	...	2	2	2
....	....	....	....	....	1	1	32	6	16	3	25	20	25	30	6	17	22	17
....	....	2	....	1	8	1	86	10	33	7	47	32	52	64	25	21	46	36
....	....	1	....	...	3	1	21	.....	5	2	7	5	2	11	3	2	5	6
....	....	....	....	....	....	....	1	.....	.....	1	.....	....	2	.....	1	1	2	1
....	....	....	....	....	....	....	.....	.....	2	....	.....	1	.....	.....	....	....	....	....
....	....	....	....	....	....	....	.....	.....	1	....	2	....	2	.....	....	....	....	....
....	...	....	....	....	...	....	5	1	3	....	3	3	.....	3	2	....	2	9

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Death under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
SOUTHERN TIER DIST.—(*Con.*)								
Horseheads	3,319	2	.....	1	.....	.....	....	....
HORNELLSVILLE	12,000	17	17.0	2	11.8	176.5	....	....
Bath	3,261	7	25.7	1	14.2	142.8	....	....
CORNING	10,025	17	20.0	4	23.5	294.1	...	....
Wellsville	5,033	4	10.0	1	25.0	250.0	....	....
OLEAN	10,000	13	15.6	4	25.0	250.0	....	...
Salamanca	3,700	6	17.5	5	83.3	666.6	....	....
DUNKIRK	13,200	17	15.3	6	35.2	411.7	....	....
JAMESTOWN	18,627	32	20.5	4	12.5	156.2	....	2
Westfield	3,000	0	.....	0	....	.....	....	....
Fredonia	3,400	7	23.7	1	14.2	285.7	....	1
Rest of district	250,000	237	11.3	46	19.5	183.0	1	6
EAST CENTRAL DISTRICT								
Totals	415,000	407	12.0	77	19.0	130.0	3	7
SYRACUSE	120,000	112	11.3	34	30.37	142.8	2	2
Baldwinsville	3,040	3	12.0	0	.....	.....	....	....
De Witt	5,182	1	.....	0	.....	.....	....	1
Cortland	8,600	12	16.8	3	25.0	333.3	....	....
Homer	3,000	4	16.0	2	50.0	500.0	....	....
Oneida	6,100	7	13.8	2	28.5	428.5	....	....
Hamilton	4,110	4	12.0	0	.....	.....	....	....
Cazenovia	3,873	6	18.0	1	16.7	166.7	....	....
Brookfield	3,235	4	14.8	0	.....	250.0	....	1
Norwich	6,000	9	18.0	2	22.2	.....	....	....
Oneonta	8,000	8	12.0	1	12.5	.....	....	....
Worcester	2,670	2	9.0	0	.....	.....	....	....
Cooperstown	3,000	3	12.0	0	.....	.....	....	....
Walton	4,811	3	.....	0	.....	.....	....	....
Delhi	3,000	5	20.0	1	20.0	200.0	....	....
Liberty	3,500	15	.....	3	20.0	66.6	....	....
Rest of district	230,000	209	10.0	28	13.4	110.0	1	3
WEST CENTRAL DISTRICT								
Totals	325,000	317	12.5	57	18.0	200.0	2	9
AUBURN	35,000	39	13.5	16	40.0	410.0	....	2
ITHACA	13,460	9	8.0	1	11.1	111.0	....	....
Hector	4,852	7	17.5	2	28.5	285.7	....	...
Waterloo	4,350	2	5.0	0	...	.....	....	....
Seneca Falls	6,500	7	13.0	2	28.5	285.7	....	....
GENEVA	11,800	15	15.3	6	40.0	400.0	....	2
Canandaigua	5,868	1	.....	0	.....	.....	....	....
Manchester	4,181	7	20.0	1	14.2	142.8	....	....
Phelps	5,150	11	24.0	0	.....	272.7	....	....
Penn Yan	4,800	2	8.0	1	50.0	.....	....	....
Batavia	7,221	13	21.5	1	7.7	77.0	....	1
Dansville	3,758	4	13.2	0	.....	.....	....	....
Le Roy	3,000	3	12.0	0	.....	333.3	....	....
Warsaw	4,700	5	12.8	0	.....	.....	....	....
Rest of district	212,000	192	10.8	27	14.2	158.0	2	4
LAKE ONTARIO AND WESTERN DISTRICT								
Totals	875,000	1,068	15.0	357	33.4	271.0	6	22
BUFFALO	360,000	425	14.3	178	41.8	315.3	3	14
TONAWANDA	9,000	8	10.7	1	12.5	250.0	....	....
Amherst	4,000	6	18.0	1	16.7	166.7	....	....

FOR AUGUST—(*Continued*)

Zymotic Diseases																		
Malarial diseases	Small pox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of the urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
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....	....	....	....	....	3	2	38	12	27	2	46	26	47	55	26	36	38	39
....	..	....	....	....	....	1	11	2	5	1	11	8	17	10	7	9	7	19
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....	....	1	....	....	....	1	2	.....	.. ...	....	2	2	2	1	....	1	1	....
....	....	....	....	....	....	....	.....	.....	.....	....	.....	....	.....	1	....	....	....	....
....	....	....	....	....	....	....	1	.....	.....	....	2	....	.....	1	....	....	....	3
....	....	....	....	....	....	....	3	.....	3	....	1	1	2	.....	1	....	....	....
....	....	....	....	....	....	....	.....	.....	.....	....	.....	....	1	.....	....	....	....	1
....	....	....	....	....	....	....	.....	.....	4	....	.....	...	2	1	....	3	....	2
....	....	....	....	....	....	1	.....	.....	1	....	.....	.....	1	.....	1	....	1	....
....	....	....	....	....	....	....	.....	.....	2	....	.....	1	.....	2	....	1	....	....
....	....	....	....	....	2	4	18	4	14	....	17	11	25	25	11	14	25	16
2	....	3	1	3	7	10	236	49	87	7	78	63	93	112	58	61	58	112
....	....	1	1	1	6	4	104	25	40	2	17	18	31	40	18	28	26	51
....	....	....	....	....	....	....	2	.....	2	....	2	2	.....	.....	....	....	....	....
....	....	....	....	....	....	....	1	1	.....	....	.....	2	1	.....	1	....	....	....

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
LAKE ONTARIO AND WESTERN DISTRICT—(*Continued*)								
NORTH TONAWANDA	9,000	12	16.0	5	41.6	166.7	....	....
LOCKPORT	16,088	34	25.5	10	29.4	382.3	....	1
NIAGARA FALLS	16,000	18	13.5	5	27.7	277.7	....	....
Medina	4,500	8	21.3	2	25.0	250.0	....	....
Albion	4,533	3	8.0	1	33.3	....	....	....
Brockport	3,742	8	26.4	2	25.0	250.0	....	....
ROCHESTER	175,000	204	14.2	58	27.5	230.0	2	3
Palmyra	4,173	7	20.5	1	12.8	428.5	....	1
Newark	4,600	8	20.8	0	....	....	....	....
Lyons	6,127	8	15.7	1	12.5	125.0	....	....
Clyde	3,000	1	....	1	....	....	..	....
OSWEGO	22,000	32	17.5	13	40.6	531.2	...	....
Fulton	4,214	....	....	....	....	....	....	....
Richland	3,637	3	10.0	0	....	....	....	....
Rest of district	231,000	283	15.0	78	28.0	215.5	1	3
Totals for the state	7,110,000	10,003	17.1	3,696	37.0	215.8	64	157
Totals for July, 1899	....	11,291	18.7	4,819	42.6	238.7	56	94
Totals for August, 1898	....	11,302	20.0	4,811	42.5	255.0	40	181

THE DEATH RATE OF NEW YORK STATE 1897-1898

In the last Monthly Bulletin it was shown that in this state the years 1891, 1892 and 1893 were more unhealthy than any other of the last 12, and that 1897 and 1898 were more healthy than any preceding. Before inquiring of the figures what the causes of this may have been, it will be helpful to ask whether the same facts appear in adjoining states. An answer to the question will be found in the following table of death rates in six states for each year from 1887 to 1897 inclusive. The maxima and minima are indicated by putting the figures in italics:

ANNUAL DEATH RATES IN SIX NEIGHBORING STATES

Year	New York	New Jersey	New Hamp.	Mass.	R. I.	Conn.
1887	18.3	19.0	17.6	19.8	19.9	17.0
1888	19.4	17.0	18.5	19.9	20.4	17.1
1889	18.8	19.0	17.9	19.2	19.0	17.0
1890	19.4	19.8	19.6	19.4	*20.7*	18.2
1891	*20.8*	19.5	19.4	19.7	19.6	*19.2*
1892	*20.9*	*21.6*	*20.9*	*20.8*	20.1	19.0
1893	20.2	19.9	20.4	20.5	19.6	18.6
1894	19.0	19.1	17.8	19.1	19.1	16.8
1895	19.2	18.3	17.7	19.0	19.6	17.8
1896	18.6	17.9	*17.2*	19.3	19.1	17.5
1897	*17.4*	*16.9*	17.7	*18.2*	*17.6*	*15.7*

From this table it appears that 1892 and to a less extent 1893, 1891 and 1890 were very unhealthy years, at least in the North Atlantic states, and that since then there has been a steady improvement, reaching the best record in all the states but New Hampshire in the last year of the table. The explanation of the high death rate in New York must explain then the high rate in neighboring states, that is, the cause or causes, whatever they were, were general and not local.

It may next be asked, can the time of year when deaths were exceedingly many during this unhealthy period be more closely fixed? To answer this question the following table for New York state has been constructed from the figures in the annual reports of this board:

FOR AUGUST—(*Continued*)

Zymotic Diseases																		
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrhœal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrhœal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	2	.....	2	....	1	....	1	3	....	1	....	2
....	....	....	....	....	....	1	11	2	2	....	3	2	3	4	3	1	1	....
....	....	....	....	..	....	2	3	2	.....	....	4	1	.....	2	1	1	....	2
....	....	....	....	....	....	....	1	.....	1	....	2	....	1	1	....	....	1	1
....	....	....	....	....	....	....	.....	.....	1	...	1	....	1	.....	....	....	....	....
....	....	....	....	....	....	....	2	.....	1	....	1	....	1	2	1	....	....	....
...	....	1	....	....	1	2	38	7	15	2	20	14	12	28	12	17	10	20
...	....	....	....	....	....	....	2	.....	1	....	.....	....	2	.....	1	....	....	....
....	....	....	..	....	....	....	.....	1	2	....	.....	1	.....	2	1	....	1	....
....	....	1	....	....	....	....	.....	.....	1	...	1	1	.....	2	....	....	....	2
...	....	....	....	....	....	....	1	.....	.....	....	.....	....	.....	.....	....	....	....	....
....	....	....	...	....	....	1	16	.....	4	....	1	1	3	.....	....	1	4	1
....	....	....	....	....	....	....	.....	.....	.....	....	.....	....	.....	.....	....	....	....	....
....	....	....	....	....	..	....	.....	.....	.....	....	.....	....	1	....	....	....	1	1
2	....	....	....	2	....	....	53	11	15	3	25	26	36	28	20	12	14	32
23	....	26	49	15	120	171	1,535	599	1,094	75	1,091	679	736	955	394	576	433	1271
34	....	45	82	21	101	193	2,056	748	1,076	7	1,428	755	690	981	396	645	402	1405
49	....	26	26	16	168	124	2,345	613	1,109	67	1,288	651	749	1,062	390	709	430	1349

Month.	Smallest number of deaths in any year, 1887-1897.	Largest number of deaths in any year, 1887-1897.	Per cent of excess of maximum over minimum.	Year of maximum mortality for that month.
January	7,671	13,460	75	1892
February	6,653	10,771	62	1895
March	7,880	12,000	53	1893
April	7,967	13,981	76	1891
May	7,523	10,718	43	1893
June	7,484	9,805	31	1894
July	10,300	13,555	31	1892
August	9,042	12,475	38	1896
September	8,264	10,011	21	1895
October	7,370	9,718	32	1891
November	6,987	8,727	25	1891
December	7,886	11,241	43	1891

It will be seen that more deaths occurred in April, 1891, than in any other month, and that in the last three months of that year the deaths again rose to a maximum. The very high death rate of 1892 is seen to be a resultant from the concurrence of a very large number of deaths in January and in July of that year, these being after April, 1891, the most unhealthy months of the entire 132.

The causes, then, of the high death rate in this state in 1891 and 1892 were effective especially in April, 1891, October, 1891, to January 1892, inclusive, and July, 1892. On examining the returns for deaths by causes it appears that in April, 1891, there were 4,357 deates reported from acute and respiratory diseases, while the largest number for that month in any other year was 2,943. Similar evidence may be found in explanation of the high mortality October, 1891, to January, 1892, while July, 1892, was characterized by an unprecedented mortality of young children. Over 600 more deaths of children under five were reported in that month than in any other during the 11 years.

Now April, 1891, marked the climax in this state of the second and most fatal epidemic of influenza, while a third epidemic began in November of the same year and reached its climax in January, 1892. Children's diseases and deaths were especially common in July, 1891, and

July, 1892. The main reason, then, for the abnormally high death rate in this state and presumably in those adjoining us, in 1891 and 1892, was the coincidence between severe epidemics of influenza prevailing during the cooler months and attacking especially adults, and digestive diseases prevailing during the hot months and attacking especially children.

One reason among many for the remarkably low death rate in the years since 1892 may be found in the large number of deaths just before. The feeble and sickly succumbed in large numbers to these repeated epidemics, and while many others were left in impaired health, yet the average vitality of the survivors was probably somewhat higher after the process of decimation had ended.

REMARKS—For the month of August, compared with the preceding month, the annual death rate per 1,000 population from all causes has fallen from 18.7 to 17.1; there were 1,300 fewer deaths reported than in August, 1898, and 800 fewer than the average of the past 10 years. Allowing for delayed returns the death rate would not exceed 18 per 1,000 population, the average for the past 10 years having been nearly 20. For the three summer months there has been an average daily mortality of 334 against 341 in 1898.

The infant mortality is one fouth less than in July, and 37 per cent of deaths have occurred under the age of five years against 42.5 per cent in August, 1898, the saving being mostly in the maritime district. The percentage of infant deaths is increased from that of July in the Adirondack, Mohawk valley, Southern tier and West central districts, being diminished in the other districts. The zymotic mortality follows nearly the same relative proportion, being

FOR AUGUST—(*Concluded*)

diminished in the districts having large city populations and increased, from July, in the other districts.

Of the zymotic diseases typhoid fever and whooping cough have increased. The former caused 156 deaths against 94 in July and 181 in August, 1898; it has increased in all of the districts from last month. Whooping cough caused 120 deaths, August being uniformly the month of its largest mortality in this state, but it has had a smaller mortality than last summer. From diphtheria 170 deaths are reported against an average of 270, there having been a constant decrease yearly in August for four years; there were but 37 deaths from it outside of the metropolis.

Diarrheal diseases caused 15 per cent of the mortality of the month, against 18 in July and 20 in August last. In the rural towns of "rest of district" the diarrheal mortality was doubled from July, while in the five large cities it was diminished by nearly one-half, the incidence of these diseases being upon the late summer in the country and upon the early summer in the cities.

Except for a recently reported case in Horseheads, Chemung county, probably originating out of the state, there is no small-pox known of in the state at the time of this issue.

Of 230 deaths from violence 56 were from drowning, 34 from railway accidents, 25 from suicide, 5 lighting stroke and 3 from hydrophobia.

There was marked equability of temperature with the normal average of 72°, an unusual number of clear sunny days, which has characterized the entire summer (only 20 cloudy days in the 92), and a deficiency of one-half from the average rainfall, that of August being especially small.

MONTHLY BULLETIN OF THE NEW

Abstract of reports of deaths and causes in the following

[Cities are printed in SMALL CAPS, villages in *italics* and towns in Roman

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
MARITIME DISTRICT Total	3,826,000	5,418	17.2	2,168	40.0	155.2	30	86
CITY OF NEW YORK Totals	3,550,053	5,021	17.2	2,117	42.3	150.0	28	80
BOROUGH OF MANHATTAN	1,953,569	2,643	16.5	1,119	42.3	144.1	14	39
BOROUGH OF THE BRONX	163,537	284	21.1	95	33.4	105.7	....	1
BOROUGH OF BROOKLYN	1,231,548	1,770	17.5	778	43.7	176.5	11	30
BOROUGH OF QUEENS	134,139	221	20.0	90	41.0	153.5	2	7
BOROUGH OF RICHMOND	67,260	103	18 6	40	38.8	174.7	1	3
Oyster Bay	15,000	18	14.4	5	27.7	333.3	....	....
Hempstead	24,000	27	13.5	11	40.8	185.0	....	....
North Hempstead	8,726	7	10.5	2	28.5	142.8	....	....
Southold	7,671	12	18.8	2	16.7	250.0	....	1
Sag Harbor	3,000	10	40.0	6	60.0	600.0	....	....
Huntington	8,258	19	24.5	8	42.1	210.5	....	....
Brookhaven	13,500	24	21.3	8	33.3	333.3	....	....
YONKERS	42,000	72	20.5	39	54,2	194.5	....	....
Greenburg	12,000	11	11.0	5	45.4	272.7	....	....
MOUNT VERNON	15,513	23	17.0	7	31.8	136.4	....	1
Port Chester	7,547	16	25.0	7	43.7	250.0	1	....
Sing Sing	9,500	3	.....	0	.....	.....	....	....
NEW ROCHELLE	10,000	12	14.4	4	33.3	250.0	....	....
Peekskill	10,000	16	19.3	6	37.5	375.0	....	....
White Plains	4,042	9	27.0	3	33.3	222.2	....	....
Rest of District	90,000	118	16.0	28	23.7	200.0	1	4
HUDSON VALLEY DISTRICT Totals	700,000	826	14.3	214	25.8	184.1	9	19
ALBANY	100,000	135	16.6	42	31.1	111.1	2	1
COHOES	25,000	30	14.6	14	46.6	333.3	....	1
TROY	65,000	89	16.6	23	25.8	168.5	....	1
WATERVLIET	14,000	22	18.8	6	27.3	363.6	....	2
Green Island	4,500	4	11.5	2	50.0	500.0	....	....
Lansingburg	12,000	.....	.....	.....	.....	.....	....	....
Hoosick Falls	7,014	5	8.5	2	40.0	200.0	....	....
RENSSELAER	8,000	8	12.0	2	25.0	125.0	....	....
Coxsackie	3,824	4	12.5	0	.....	250.0	....	....
Catskill	5,000	4	9.6	1	25.0	.....	....	....
HUDSON	10,000	14	16.8	3	21.4	71.4	....	....
KINGSTON	25,000	36	17.5	6	16.6	111.1	....	2
Ellenville	3,000	1	.....	1	.....	.....	....	....
Marbletown	3,589	3	10.0	0	.....	.....	....	....
Rosendale	6,125	6	12.0	3	50.0	.....	....	....
Esopus	5,035	7	16.8	3	42.8	571.4	....	....
Saugerties	4,237	2	.....	0	.....	.....	....	....
POUGHKEEPSIE	25,000	22	10.7	4	18.2	181.8	2	....
Fishkill	12,000	13	13.0	4	30.6	538.5	1	1
Wappinger Falls	3,718	5	16.0	1	20.0	.....	....	....
NEWBURGH	36,000	29	10.0	4	13.8	138.0	....	2
Port Jervis	9,327	6	8.0	2	33.3	333.3	....	....
MIDDLETOWN	12,000	19	19.0	4	21.0	105.0	....	....
Warwick	6,000	7	14.0	2	28.5	.....	....	....
Goshen	4,646	2	.....	0	.....	.....	....	....

YORK STATE BOARD OF HEALTH

districts, cities, villages and towns during September, 1899

type. For boundaries of *Sanitary districts* see Annual summary]

Zymotic Diseases																		
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
18	....	16	34	4	60	121	472	578	610	35	702	412	334	460	180	321	94	851
17	....	16	33	4	56	116	399	563	568	33	662	385	302	416	166	302	82	793
1	....	9	12	3	35	49	192	347	278	24	344	211	160	209	96	184	43	393
4	....	....	2	....	1	4	18	19	77	..	33	22	9	23	5	16	10	40
11	.. .	6	17	1	19	56	162	171	189	8	288	127	115	151	55	74	24	305
1	....	1	2	....	1	6	14	17	14	1	38	18	11	24	6	24	2	32
....	....	....	....	....	....	1	18	9	10	....	9	7	7	9	4	4	3	23
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....	...	....	...	....	....	....	5	2	3	....	1	2	.....	4	2	3	1	4
....	...	....	....	....	....	....	1	.....	1	....	1	....	.....	2	....	....	1	1
....	....	...	....	....	....	....	2	.....	3	....	2	....	.....	3	....	....	....	1
....	....	....	....	....	....	....	6	.....	1	....	1	...	.....	....	....	....	....	2
....	...	....	....	....	....	....	4	2	.....	....	4	1	3	2	....	....	1	2
....	....	....	....	....	2	....	6	.....	1	....	2	3	.....	2	1	1	2	4
....	....	....	....	....	....	....	14	8	5	....	8	3	5	11	....	3	....	15
....	....	....	....	....	1	....	2	.....	.....	....	.....	2	1	.....	....	1	1	3
....	....	....	...	....	....	....	2	.....	3	....	3	4	2	2	1	....	1	4
....	....	....	....	....	....	2	1	.....	.....	....	3	1	1	.....	3	....	....	4
....	....	....	....	....	....	....	.....	.....	1	....	.....	1	.....	.....	....	1	....	...
....	....	..	....	....	1	1	1	.....	1	1	.....	1	.....	2	1	2	....	1
....	....	....	1	....	....	1	4	1	4	....	1	....	1	1	1	....	....	1
....	....	....	....	....	....	....	2	.....	1	....	.....	1	1	2	....	....	....	2
1	....	....	....	....	....	1	17	2	17	1	14	5	14	12	4	7	4	14
1	....	1	....	1	7	23	90	45	85	1	72	41	84	109	42	54	45	97
....	....	1	....	....	1	5	5	11	16	....	9	6	15	21	9	9	4	20
....	....	....	....	....	....	3	6	5	.....	....	1	...	4	3	...	1	1	5
....	....	...	....	....	....	5	9	8	10	....	10	8	5	11	3	5	2	12
....	....	...	....	....	....	2	4	1	1	....	2	....	1	4	....	2	1	2
....	....	....	....	....	....	....	2	.....	.....	....	.....	....	1	.....	....	1	....	....
....	....	....	....	....	....	....	.....	.....	.....	....	.....	....	.....	.....	....	....	....	....
....	....	....	....	....	....	....	1	.....	2	....	.....	....	.....	.....	....	1	....	1
....	....	....	....	....	....	....	1	.....	.....	....	1	...	1	2	2	....	....	1
....	...	....	....	....	....	....	1	.....	.....	....	.....	1	.....	.....	1	....	....	....
....	....	....	....	1	....	....	.....	.....	3	....	2	..	1	2	....	1	2	2
1	....	....	....	....	....	1	.....	3	2	....	1	2	8	4	4	4	2	2
....	....	....	....	....	....	....	.....	.....	.....	....	.....	....	.....	1	....	....	....	....
....	....	....	....	....	....	....	.....	.....	.....	....	.....	....	.....	1	1	....	....	1
....	....	....	....	....	....	....	.....	.....	.....	....	2	...	1	1	1	....	....	1
....	....	....	....	....	....	2	2	.....	.....	....	.....	1	1	.....	....	....	....	1
....	....	....	....	....	....	....	.....	2	1	4	....	3	1	3	2	1	2	1
....	....	....	....	....	3	....	2	.....	.....	..	1	1	2	.....	....	1	1	....
....	....	....	....	....	....	....	.....	.....	1	....	.....	2	.....	.....	....	....	....	2
....	....	....	....	....	....	....	2	... ..	5	....	3	2	4	1	4	1	1	4
...	....	....	....	....	....	..	2	2	1	....	.....	1	.....	.....	....	....	....	....
....	....	....	....	...	....	1	1	.....	4	....	2	1	2	4	....	2	1	1
....	....	....	....	....	....	....	.....	1	.....	....	1	....	1	2	....	....	....	2
....	....	....	....	....	....	....	.....	.....	1	....	.....	...	.....	1	....	....	....	....

MONTHLY BULLETIN OF THE NEW

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YONKERS	42,000	72	20.5	39	54.2	194.5	....	....
Greenburg	12,000	11	11.0	5	45.4	272.7	....	....
MOUNT VERNON	15,513	23	17.0	7	31.8	136.4	....	1
Port Chester	7,547	16	25.0	7	43.7	250.0	1	....
Sing Sing	9,500	3	.....	0	.....	.....	....	....
NEW ROCHELLE	10,000	12	14.4	4	33.3	250.0	....	....
Peekskill	10,000	16	19.3	6	37.5	375.0	....	....
White Plains	4,042	9	27.0	3	33.3	222.2	....	....
Rest of District	90,000	118	16.0	28	23.7	200.0	1	4
HUDSON VALLEY DISTRICT Totals	700,000	826	14.3	214	25.8	184.1	9	19
ALBANY	100,000	135	16.6	42	31.1	111.1	2	1
COHOES	25,000	30	14.6	14	46.6	333.3	....	1
TROY	65,000	89	16.6	23	25.8	168.5	....	1
WATERVLIET	14,000	22	18.8	6	27.3	363.6	....	2
Green Island	4,500	4	11.5	2	50.0	500.0	....	....
Lansingburg	12,000	.....	.....	.....	.....	.....	....	....
Hoosick Falls	7,014	5	8.5	2	40.0	200.0	....	....
RENSSELAER	8,000	8	12.0	2	25.0	125.0	....	....
COXSACKIE	3,824	4	12.5	0	.....	250.0	....	....
Catskill	5,000	4	9.6	1	25.0	.....	....	....
HUDSON	10,000	14	16.8	3	21.4	71.4	....	....
KINGSTON	25,000	36	17.5	6	16.6	111.1	....	2
Ellenville	3,000	1	.....	1	.....	.....	....	....
Marbletown	3,629	3	10.0	0	.....	.....	....	....
Rosendale	6,125	6	12.0	3	50.0	.....	....	....
Esopus	5,035	7	16.8	3	42.8	571.4	....	....
Saugerties	4,237	2	.....	0	.....	.....	....	....
POUGHKEEPSIE	25,000	22	10.7	4	18.2	181.8	2	....
Fishkill	12,000	13	13.0	4	30.6	538.5	1	1
Wappinger Falls	3,718	5	16.0	1	20.0	.....	....	....
NEWBURGH	36,000	29	10.0	4	13.8	138.0	....	2
Port Jervis	9,327	6	8.0	2	33.3	333.3	....	....
MIDDLETOWN	12,000	19	19.0	4	21.0	105.0	....	....
Warwick	6,000	7	14.0	2	28.5	.....	....	....
Goshen	4,646	2	.....	0	.....	.....	....	....

YORK STATE BOARD OF HEALTH

districts, cities, villages and towns during September, 1899

type. For boundaries of *Sanitary districts* see Annual summary]

Zymotic Diseases																	
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
18	....	16	34	4	60	121	472	578	610	35	702	412	334	460	180	321	94	851
17	....	16	33	4	56	116	399	568	568	33	662	385	302	416	166	302	82	793
1	....	9	12	3	35	49	192	347	278	24	344	211	160	209	96	184	43	393
4	....	....	2	....	1	4	18	19	77	..	33	22	9	23	5	16	10	40
11	.. .	6	17	1	19	56	162	171	189	8	238	127	115	151	55	74	24	305
1	....	1	2	....	1	6	14	17	14	1	38	18	11	24	6	24	2	32
....	....	....	....	....	....	1	13	9	10	....	9	7	7	9	4	4	3	23
....	....	....	....	....	....	....	6	.....	1	....	.....	3	4	1	1	1	1	....
....	...	....	....	....	....	....	5	2	3	....	1	2	.....	4	2	3	1	4
....	....	....	....	....	....	....	1	.....	1	....	1	....	.....	2	....	....	1	1
....	....	...	....	....	....	....	2	.....	3	....	2	....	.....	3	....	....	....	1
....	....	....	....	....	....	....	6	.....	1	....	1	...	.....	....	....	....	....	2
....	...	....	....	....	....	....	4	2	.....	....	4	1	3	2	....	....	1	2
....	....	....	....	....	2	....	6	.....	1	....	2	3	.....	2	1	1	2	4
....	....	....	....	....	....	....	14	8	5	....	8	3	5	11	....	3	....	15
....	....	....	....	....	1	....	2	.....	.....	....	.....	2	1	.....	....	1	1	3
....	....	....	....	....	....	....	2	.....	3	....	3	4	2	2	1	....	1	4
....	....	....	....	....	....	2	1	.....	.....	....	3	1	1	.....	3	....	....	4
....	....	....	....	....	....	....	.....	.....	1	....	.....	1	.....	.....	....	1	....	....
....	....	...	....	....	1	1	1	.....	1	1	.....	1	.....	2	1	2	...	1
....	....	....	1	....	....	1	4	1	4	....	1	....	1	1	1	....	....	1
....	....	....	....	....	....	....	2	.....	1	....	.....	1	1	2	....	....	....	2
1	....	....	....	....	....	1	17	2	17	1	14	5	14	12	4	7	4	14
1	....	1	....	1	7	23	90	45	85	1	72	41	84	109	42	54	45	97
....	....	1	....	....	1	5	5	11	16	....	9	6	15	21	9	9	4	20
....	....	....	....	....	....	3	6	5	.....	....	1	....	4	3	...	1	1	5
....	....	...	....	....	....	5	9	8	10	....	10	8	5	11	3	5	2	12
....	....	...	....	....	....	2	4	1	1	....	2	....	1	4	....	2	1	2
....	....	....	....	....	....	....	2	.....	.....	....	.....	....	1	.....	....	1	....	....
....	....	....	....	....	....	....	.....	.....	.....	....	.....	....	.....	.....	....	.....	....	....
....	....	....	....	....	....	....	1	.....	2	....	.....	....	.....	.....	....	1	....	1
....	....	....	....	....	....	....	1	.....	.....	....	1	...	1	2	2	.....	....	1
....	....	....	....	....	....	....	1	.....	.....	....	1	1	.....	.....	1	....	....	....
....	....	....	....	....	....	....	.....	1	.....	....	1	....	.....	1	....	1	....	....
....	....	....	....	1	....	....	.....	.....	3	....	2	..	1	2	....	1	2	2
1	....	....	....	....	....	1	.....	3	2	....	1	2	8	4	4	4	2	2
....	....	....	....	....	....	....	.....	.....	.....	....	.....	....	.....	1	....	....	....	....
....	....	....	....	....	....	....	.....	.....	.....	....	.....	....	.....	1	1	....	....	1
....	....	....	....	....	....	....	.....	.....	.....	....	2	...	1	1	1	....	....	1
....	....	....	....	....	....	2	2	.....	.....	....	.....	1	1	.....	....	....	....	1
....	....	....	....	....	....	....	.....	.....	.....	....	.....	....	1	1	....	....	....	....
....	....	....	....	....	....	....	2	1	4	....	3	1	3	2	1	2	1	....
....	....	....	....	....	3	....	2	.....	....	...	1	1	2	.....	....	1	1	....
....	....	...	....	....	....	....	.....	1	.....	....	.....	2	.....	.....	....	....	....	2
....	....	....	....	....	....	....	2	... ..	5	....	3	2	4	1	4	1	1	4
...	....	....	....	...	....	....	2	2	1	....	.....	1	.....	.....	....	..	....	....
....	....	....	....	....	....	1	1	.....	4	....	2	1	2	4	....	2	1	1
....	....	....	....	....	....	....	.....	1	.....	....	1	....	1	2	....	....	....	2
....	....	....	....	....	....	....	.....	.....	1	....	.....	...	.....	1	....	....	....	....

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of —	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
HUDSON VALLEY DIST.—(*Con.*)								
Montgomery	5,959	12	27.3	6	50 0	500.0	...	2
Haverstraw	7,714	.....	.....	.....	.....	.....	.....	.....
Nyack	5,603	6	13.0	0	.....	200.0	....	...
Ramapo	6,600	12	21.5	5	41.7	333.3	.....	.....
Rest of district	275,000	823	14.0	74	22.5	186.0	4	7
ADIRONDACK AND NORTHERN DISTRICT								
Totals	390,000	439	13.7	117	26.6	272.7	3	26
WATERTOWN	17,000	50	35.0	23	46.0	380.0	1	3
Ellisburg	4,223	2	.....	1	50.0	500.0	....	....
Cape Vincent	3,000	1	4.0	0	.....	.....	.....	....
Clayton	4,250	7	20.0	4	57.0	285.0	1	....
OGDENSBURG	12,000	18	18.0	5	27.7	277.7	....	2
Gouverneur	6,000	10	20.0	5	50.0	500.0	....	1
Potsdam	4,000	3	9.0	1	33.3	.....	....	....
Canton	6,013	2	.....	1	50.0	500.0	....	....
Malone	5,000	1	.....	0	.....	.....	....	....
Plattsburg	8,400	5	7.5	1	20.0	200.0	....	....
Glens Falls	12,500	18	17.3	7	38 8	222.2	...	1
Whitehall	4,500	4	10.8	1	25.0	.....	....	....
Fort Edward	4,500	9	24.0	2	22.2	222.2	....	....
Kingsbury	5,112	5	12.0	1	20.0	400.0	....	....
Granville	5,281	5	11.5	2	40.0	.....	....	....
Greenwich	4,500	6	16.0	0	.....	333.3	....	2
Lowville	4,000	9	27.0	2	22.2	222.2	....	....
Rest of district	280,000	284	12.1	61	21.4	260.0	1	17
MOHAWK VALLEY DISTRICT								
Totals	395,000	459	14.0	118	25.7	152.0	2	14
SCHENECTADY	28,791	34	14.5	13	38.2	117.6	....	....
Cobleskill	3,436	5	17.5	0	.....	.....	....	....
AMSTERDAM	20,000	25	15.0	8	35.0	120.0	....	....
Fort Plain	3,000	5	20.0	0	.....	.....	....	....
JOHNSTOWN	7,768	14	21.6	3	21.4	142.8	..	....
GLOVERSVILLE	15,000	22	17.6	8	36.4	236.4	....	....
LITTLE FALLS	12,000	12	12.0	2	16.7	166.7	....	....
Herkimer	5,000	8	18.4	7	87.5	500.0	1	....
Ilion	4,057	6	18.0	4	66.6	166 6	1	..
UTICA	55,000	89	19.7	23	25.7	101.1	....	3
Whitestown	5,225	5	11.3	1	20.0	.....	....	....
ROME	14,000	17	14.6	6	35.3	353.0	....	2
Boonville	3,512	.....	.....	.....	.....	.....	....	....
Camden	3,675	2	6.5	0	.....	.....	....	....
Waterford	5,522	8	17.4	2	25 0	375.0	....	....
Mechanicville	3,000	5	20.0	1	20.0	.....	....	....
Ballston Spa	3,527	2	6 8	0	.....	500.0	....	1
Saratoga Springs	12,500	22	21.1	6	27.3	181.8	....	....
Rest of district	192,000	179	11.0	34	19.5	150.0	....	8
SOUTHERN TIER DISTRICT								
Totals	425,000	415	12.0	76	18.3	204.8	3	15
BINGHAMTON	45,000	54	14.6	11	20.3	222 2	....	2
Owego	6,000	3	6.0	1	33.3	333.3	....	....
Candor	3,525	5	17.0	0	.....	200.0	....	..
Waverly	4,122	3	9.0	1	33.0	666.6	....	1
ELMIRA	40,000	36	11.0	5	14.0	1.1.1	....	....

FOR SEPTEMBER—(*Continued*)

Malarial diseases	Zymotic Diseases: Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	2	1	1	3	.....	....	.....	....	1	1	....	....	.	1
....	....	....	....	....	....	....	.....	.....	.....	....	.....	...	...	....	....	....	....	....
....	....	....	....	....	....	....	1	.....	1	....	.....	....	.....	2	....	1	....	1
....	..	....	....	....	....	1	2	.....	1	....	1	....	2	1	....	1	....	2
....	....	....	....	....	1	2	45	8	34	1	31	15	30	43	16	21	29	36
....	....	....	....	..	4	4	83	18	37	3	48	24	30	53	17	25	24	40
....	....	....	....	...	1	....	14	1	4	..	5	1	3	3	....	3	1	10
....	....	....	....	....	....	....	1	.....	.....	....	.....	...	.....	.....	....	...	1	....
....	....	....	....	....	....	....	.....	.....	.....	....	.....	1	.....	.....	....	....	....	....
....	....	....	....	....	....	...	1	.....	.....	....	1	1	.....	1	1	....	....	1
....	....	....	....	....	....	....	3	1	1	....	4	1	3	.....	1	....	....	2
....	..	....	....	....	.	....	4	.....	.....	...	3	....	.....	1	...	....	....	1
....	....	....	....	....	.	....	.....	.....	1	....	1	....	....	1	....	....	....	....
....	....	....	....	....	....	....	1	.....	.....	....	.....	....	.....	.....	....	....	....	1
....	....	....	....	....	....	....	.....	.....	1	....	.....	....	.....	.....	....	....	....	....
....	....	.	....	....	1	....	.....	1	.....	....	1	....	.....	1	....	....	1	....
....	....	....	....	....	...	1	2	1	1	....	1	....	2	1	....	2	1	5
....	....	....	....	....	....	....	.....	.....	.....	...	.....	....	1	1	....	...	1	1
...	....	....	....	....	....	1	1	1	2	....	.....	....	.....	1	...	1	1	1
....	..	....	....	....	....	...	2	.....	.....	...	1	1	.....	1	....	..	.....	....
....	....	....	....	....	....	..	.....	1	1	2	1	....	.....	.....	..	....	....	....
....	....	....	....	...	....	....	.....	.....	1	....	.....	1	.....	1	....	....	....	1
....	....	..	....	....	....	1	1	.....	.....	....	.....	1	1	2	1	1	1	....
....	....	....	..	....	2	1	53	12	25	1	30	17	20	39	14	18	17	17
....	....	....	....	1	4	5	45	16	29	2	49	39	62	56	26	22	25	62
....	....	....	....	..	....	....	4	2	3	....	1	2	2	7	1	3	1	8
....	....	....	....	....	....	....	.....	.....	1	....	1	....	1	.....	....	1	1	....
....	....	.	....	....	1	.	2	1	2	...	1	1	3	2	4	2	....	6
....	....	....	....	....	....	....	.....	.....	.....	....	1	....	1	1	....	....	1	1
....	....	....	....	..	1	....	1	1	.....	....	3	2	2	.....	3	....	1	....
....	....	....	....	....	....	....	5	.....	1	....	3	3	2	2	1	....	1	4
....	....	....	....	....	....	....	2	1	1	....	1	2	2	1	2	....	....	....
....	....	....	..	....	....	....	3	.....	.....	....	1	..	1	2	...	....	....	....
....	....	....	....	....	....	....	.....	.....	.....	....	1	..	.....	1	1	.	1	1
....	....	....	....	....	1	3	2	2	7	....	11	9	11	10	3	4	2	21
....	....	....	....	....	....	....	.....	.....	1	....	1	...	2	1	...	....	....	....
....	....	....	....	..	....	....	4	.....	.....	....	2	....	2	2	1	2	2	....
....	....	.	....	..	....	....	.....	.....	.....	...	.....	....	.....	.....	....	....	....	....
....	....	....	....	..	....	....	.....	.....	.....	....	.....	...	1	1	....	....	....	....
....	....	....	....	..	....	1	2	.....	1	...	.....	....	2	.....	1	1	...	....
..	....	....	....	....	....	....	.....	.....	2	....	.....	1	.....	1	1	...	....	....
....	....	....	....	....	....	....	.....	.....	.....	....	.....	....	1	.....	....	....	....	....
....	....	....	....	....	1	....	3	1	1	1	.....	3	3	4	1	....	....	4
....	..	....	....	1	....	1	17	8	9	1	22	16	26	21	7	9	15	17
....	....	....	....	....	2	9	56	13	31	3	47	36	48	45	15	24	31	37
....	....	..	..	....	1	2	7	4	4	....	4	4	7	10	2	....	2	5
....	....	....	....	....	....	....	1	.....	.....	....	.....	1	.....	.....	....	....	1	....
....	....	....	....	....	....	....	1	.....	.....	....	.....	....	2	1	....	..	1	...
....	....	....	....	....	....	....	1	.....	1	....	.....	....	.....	.....	....	....	....	....
....	....	....	....	..	....	3	1	1	4	....	5	5	2	4	...	3	3	5

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths, per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
LAKE ONTARIO AND WESTERN DISTRICT—(*Continued*)								
NORTH TONAWANDA	9,000	7	9.5	4	57.1	128.5	....	....
LOCKPORT	16,088	15	.....	3	.....	.....	....	1
NIAGARA FALLS	16,000	15	11.3	6	40.0	133.3	....	....
Medina	4,500	4	10.7	0	.....	.....	....	....
Albion	4,536	6	15.8	1	16.7	166.7	...	.
Brockport	3,742	4	13.3	0	.....	250.0	....	1
ROCHESTER	175,000	166	11.5	37	22.3	144.5	3	1
Palmyra	4,173	4	12.0	1	25.0	.....	....	....
Newark	4,500	3	7.8	1	33.3	333.3	....	....
Lyons	6,127	7	13.8	0	.....	285.0	....	1
Clyde	3,000	4	16.0	3	75.0	500.0	....	1
OSWEGO	22,000	38	20.7	8	21.0	150.0	....	....
Fulton	4,214	8	22.8	2	25.0	125.0	...	....
Richland	3,697	2	11.0	0	.....	.....	....	....
Rest of district	231,000	200	13.7	62	23.8	227.0	....	5
Totals for the state	7,110,000	9,186	15.8	3,068	33.4	172.2	57	205
Totals for August, 1899	.....	10,003	17.1	3,696	37.0	215.8	64	157
Totals for September, 1898	.....	11,481	20.7	4,320	37.5	230.0	47	333

THE DISTRIBUTION OF MORTALITY THROUGH THE YEAR IN NEW YORK STATE.

The figures published in recent monthly bulletins of the State Board of Health make it possible to study somewhat more carefully than has heretofore been done by this Board, the distribution of deaths throughout the year and thus which are the healthy and which the unhealthy months. But the months are of different lengths and it is not correct to compare the number of deaths, for example, in February with those in January or March, without allowing for the fact that in a shorter month fewer deaths should occur. This allowance may be made by dividing the number of deaths in each month by the number of days it contains and thus getting the daily average number of deaths. Still the result thus reached is open to objection from another side, because with the increase of the state's population, the average number of deaths would naturally increase. Hence the daily average for each month has been divided by the daily average for the year. The quotients will range about unity, or as it is convenient to neglect the decimal point, about 100, a number above that indicating an unhealthy month and one below it a healthy one. By this method the following table has been prepared showing the mortality in New York state by months from 1894 to 1898 inclusive. A plus sign (+) prefixed to a number marks the most unhealthy month and a minus sign (—) the most healthy month of each year.

Mortality ratio of the months in New York state:

Month	1894	1895	1896	1897	1898
January	109	106	99	96	94
February	104	+115	108	110	99
March	102	110	108	+116	100
April	102	105	106	107	101
May	92	91	93	93	95
June	101	87	95	94	—87
July	+125	113	+124	113	111
August	103	107	122	101	110
September	98	100	96	100	+116
October	90	90	85	91	94
November	—84	—84	—80	—87	87
December	90	91	89	92	106
Total	1,200	1,200	1,200	1,200	1,200

FOR SEPTEMBER—(*Continued*)

Zymotic Diseases								Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases											
....	....	....	....	....	....	....	1	.. 2	1	....	1	...	.....	1	1	....	....	2
....	....	....	....	....	....	....	2	2	.....	...	1	....	1	4	3	...	...	1
....	....	....	....	....	....	....	2	2	1	....	4	..	.....	2	....	1	...	3
....	....	....	....	....	....	....	.....	1	1	....	.....	...	1	.....	....	....	1	...
....	....	....	....	....	....	....	1	.....	.....	....	.....	1	2	2	....	....	....	...
....	....	....	....	....	....	....	.....	.....	1	....	.....	...	.....	...	1	1	...	...
....	....	....	....	....	....	5	15	11	24	2	14	11	12	26	8	9	8	17
....	....	....	....	....	....	....	.....	1	....	....	.....	1	.....	1	....	....	....	1
....	....	....	....	....	....	....	1	.....	.....	....	1	....	1	.....	....	....	....	....
....	....	1	....	....	....	..	.....	.....	.....	....	.....	1	.....	1	....	1	2	....
....	....	....	....	....	....	....	1	.....	.....	....	.....	....	.....	.....	....	....	....	2
....	....	....	....	....	....	....	4	2	3	....	6	4	4	3	2	4	2	4
....	....	....	....	....	....	....	1	1	.....	....	1	....	2	.....	1	1	1	....
....	....	....	....	....	....	....	.....	.....	.....	....	.....	....	.....	1	....	1	..	....
1	....	....	....	....	....	1	53	7	22	....	28	10	36	39	11	11	18	24
21	....	19	34	6	85	188	972	755	947	50	1,065	646	729	987	366	537	327	1247
23	....	26	49	15	120	171	1,535	599	1,084	75	1,091	679	736	955	394	576	433	1351
82	....	26	20	6	130	135	1,872	768	1,076	70	1,169	647	856	1,116	378	967	478	1362

The months above the mean, 100, in each of the last five years, and so the regularly unhealthy months, are April, July and August. The months below 100 in each case, and so the uniformly healthy months, are May, October and November. November has regularly almost or quite the lowest mortality of any month in the year, from four-fifths to seven-eighths the annual average, while July has twice been about one-quarter higher than the average for the year. Midsummer is thus in this state the most unhealthy season and late fall the most healthy season of the year.

In order to get further light upon the monthly mortality, the question may be raised whether midsummer is unhealthy and late fall healthy for persons of all ages. As the ages of the dying are tabulated only so far as to distinguish those under five and those over five, we may compare in the manner already explained the monthly deaths of children under five with those of persons over five, and also of those reported as dying of old age. As the preceding table shows the last year to have been an average one, the figures are confined to 1898.

Comparative monthly mortality ratio of persons under five years old, persons over that age and persons dying of old age:

Month	Persons under five.	Persons over five.	Persons reported as dying of old age.
January	77	101	99
February	90	108	115
March	91	104	107
April	91	105	106
May	86	99	100
June	84	88	80
July	157	91	80
August	158	91	93
September	143	104	106
October	91	95	95
November	65	93	99
December	72	121	120
Total	1,200	1,200	1,200

This table shows that the high mortality of the summer months presses only on children under five years of age. In July, August and September of last year the child mortality was about 50 per cent above the average for the year, while that for persons reported as dying of old age was rather below the average. The months most favorable to the aged are apparently those of early summer, June and July, while the months of winter and early spring show an abnormal excess of deaths.

REMARKS.—There were 9,186 deaths reported during the month, 800 less than the preceding month, the death rate having fallen from 17.1 to 15.8. The returns are probably within 250 of the full number. There is a saving of 600 in the deaths of early life, of the same number in diarrheal mortality and 190 fewer deaths are reported from consumption and old age. On the other hand there were 150 more deaths from acute respiratory diseases than in August, other local diseases continuing the same as in last month.

Compared with September of other years, there were 2,300 fewer deaths than in September 1896, in which month, however, the mortality was excessive, being greater than that of August; there were but half the number of deaths from diarrheal diseases, a smaller mortality from digestive and nervous diseases, and the infant mortality was much smaller, the summer causes of death having continued operative then, whereas the autumn increase of the respiratory diseases has been no greater. The average September mortality of the 10 years prior to 1898 was 9,300, which is still a little larger than that of the present month. There have not been so few deaths reported in September since 1890.

The decrease in mortality from August is chiefly in the Maritime and the Lake Ontario and Western districts, that of the Central districts being even greater; the same is true of

FOR SEPTEMBER—(*Concluded*)

the diarrheal mortality. In the five large cities there were 1,500 fewer deaths than in August, and the deaths from diarrheal diseases were less than half the number in August; in rural towns (rest of district) the total mortality and also the diarrheal mortality were both nearly the same as in August, the latter constituting about 16 per cent of the deaths, against 8 per cent in the cities. One-fourth of these deaths in rural towns from diarrheal diseases occurred above the age of five years.

Typhoid fever caused 205 deaths, being increased by 50 from August, and the increase affected all the health districts. There were 2.2 deaths per 100,000 population, for the month, in the five large cities, and 3.6 in the rural towns from typhoid fever.

Scarlet fever is reported from 98 towns in various parts of the state, but of the 19 deaths only three occurred outside New York City. Measles caused no deaths outside the metropolis. Whooping-cough has been of general distribution, its reported mortality showing a decrease of one third from August.

Possible, though unconfirmed, development of smallpox, especially near the borders of the state, emphasize the need of every precaution being continued by health officers.

Diphtheria increased in mortality and caused more deaths than in September, 1898.

Acute respiratory diseases increased by 150 the mortality reported in August, the 755 deaths being the average for the month of past years.

Of 300 violent deaths 87 were from railway accidents, 86 from drowning, 2 from electric car, 12 from suicide.

The rainfall, following dry summer months, was excessive in all parts of the state, with an average of 4.5 inches; the temperature was also 2° below the normal of 69°, with ranges between 40° and 90°; average relative humidity for the month 78 per cent and dew point, 48°

MONTHLY BULLETIN OF THE NEW

Abstract of reports of deaths and causes in the following

[Cities are printed in SMALL CAPS, villages in *italics* and towns in Roman

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro spinal meningitis	Typhoid fever
MARITIME DISTRICTS Totals	3,826,000	5,374	15.0	2,509	46.3	100.0	27	89
CITY OF NEW YORK Totals	3,550,053	4,993	17.0	2,414	48.3	100.0	26	87
BOROUGH OF MANHATTAN	1,953,569	2,817	17.3	850	30.2	96.2	18	49
BOROUGH OF THE BRONX	168,537	288	21.0	82	28.5	134.5	3	3
BOROUGH OF BROOKLYN	1,231,548	1,613	15.4	597	37.0	102.5	5	23
BOROUGH OF QUEENS	134,139	186	16.3	63	33.9	107.5	....	7
BOROUGH OF RICHMOND	67,260	88	15.2	22	25.0	80.0	....	3
Oyster Bay	15,000	14	12.0	2	14.2	.....	....	....
Hempstead	24,000	27	13.5	8	29.6	111.0	....	....
North Hempstead	8,726	18	25.5	6	33.3	222.2	....	....
Southold	7,671	8	12.5	1	12.5	125.0	....	....
Sag Harbor	8,000	5	20.0	1	20.0	.....	....	....
Huntington	8,253	7	11.0	0	.....	.....	....	....
Brookhaven	13,500	23	20.0	3	12.6	35.0	....	....
YONKERS	42,000	48	13.5	18	37.5	20.8	....	1
Greenburg	12,000	17	17.0	6	35 2	176.0	1	....
MOUNT VERNON	15,5 3	10	7.2	3	33.3	.....	....	....
Port Chester	7,547	10	15.9	2	20.0	200.0	....	....
Sing Sing	9,500	14	17.7	2	14.3	70.0	....	....
NEW ROCHELLE	10,000	6	7.2	1	16.7	.....	....	....
Peekskill	10,000	16	18.3	4	25 0	187.5	....	....
White Plains	4,042	10	30.0	3	30.0	100.0	....	....
Rest of distr ct	90,000	149	.....	35	23.3	120.0	....	1
HUDSON VALLEY DISTRICT Totals	700,000	911	15.0	180	20.0	132.8	11	20
ALBANY	100,000	188	16.2	33	24.0	108.7	....	5
COHOES	25,000	31	15.0	9	29.0	258.0	....	.
TROY	65,000	95	17.2	28	29.5	168.4	....	3
WATERVLIET	14,000	14	14.0	4	28.5	.....	....	....
Green Island	4,500	4	11.0	3	75.0	500.0	....	....
Lansingburg	12,000	39	16.9	8	18.5	125.0	....	2
Hoosick Falls	7,014	5	.....	0	.....	.....	....	....
RENSSELAER	8,000	8	12.0	1	12.5	250.0	....	....
COXSACKIE	3,824	4	12.5	0	.....	.....	....	....
Catskill	5,000	10	24.0	3	30.0	.....	....	....
HUDSON	10,000	15	18.0	3	20.0	66.5	....	....
KINGSTON	25,000	48	20.0	10	20.5	103.2	....	....
Ellenville	3,000	4	16.0	0	.....	.....	....	....
Marbletown	3,689	2	7.5	0	.....	.....	....	....
Rosendale	6,125	14	25.4	2	16.1	161.0	....	....
Esopus	5,035	6	14.4	2	33.3	166.7	....	....
Saugerties	4,237	8	15.1	2	25.0	.....	....	....
POUGHKEEPSIE	25,000	22	.....	2	9.1	90.9	1	....
Fishkill	12,000	16	16.0	3	18.7	62.5	....	....
Wappinger Falls	3,718	3	10.8	0	.....	.....	....	....
NEWBURGH	36,000	23	8.0	2	8.5	215.0	....	1
Port Jervis	9,327	12	15.5	2	16.7	250.0	....	..
MIDDLETOWN	12,000	15	15.0	3	20.0	66.7	....	....
Warwick	6,000	3	6.0	0	.....	.....	....	....
Goshen	4,646	3	8.0	0	.....	.....	....	....

YORK STATE BOARD OF HEALTH

districts, cities, villages and towns during October, 1899

type. For boundaries of *Sanitary districts* see Annual summary]

Zymotic Diseases																	
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
18	1	22	23	4	35	155	161	803	672	38	509	489	388	475	216	319	134	801
14	1	22	23	3	32	151	140	759	537	37	474	466	342	423	194	291	113	757
8	....	9	14	2	24	71	73	441	333	23	255	295	186	214	109	189	73	431
1	1	....	8	....	....	17	6	24	77	2	16	22	12	28	10	16	13	29
3	....	12	1	1	7	59	54	260	201	11	173	117	11	152	64	71	23	256
2	....	1	....	....	1	4	5	28	19	2	18	22	12	22	6	9	....	29
....	....	....	....	....	....	..	2	6	7	....	13	10	11	7	5	6	4	12
....	....	....	....	....	..	...	.....	2	5	....	2	....	.....	.....	2	..	2	1
....	....	....	....	....	1	....	2	3	3	....	2	2	3	4	1	....	2	4
....	....	....	....	....	....	....	2	.....	.....	....	2	1	2	.....	1	6	1	3
....	....	....	....	....	....	....	1	.....	1	....	2	1	2	1	....	....	....	....
....	....	....	....	....	....	....	.....	1	1	....	.....	.....	.....	2	....	....	....	1
....	..	....	....	....	....	....	.....	2	.....	....	1	1	1	2	....	....	....	....
....	...	....	....	....	....	....	1	2	2	....	3	....	2	2	1	4	3	3
....	....	....	....	....	....	....	.....	10	8	....	7	1	2	7	2	2	....	8
....	....	....	....	....	....	....	2	3	2	....	....	1	4	2	....	....	....	2
....	....	....	....	....	....	....	.....	2	.....	....	1	1	3	1	....	2	....	....
....	....	....	....	....	....	2	.....	1	.....	....	1	....	.....	2	1	1	1	1
....	....	....	....	1	....	....	.....	4	.....	....	.....	2	2	.....	2	1	1	1
....	....	....	....	....	....	....	.....	....	.....	....	.....	....	1	1	....	2	..	2
....	....	....	....	....	2	1	.....	1	.....	....	1	4	1	3	1	2	..	....
....	....	..	....	....	....	....	1	1	....	1	1	....	1	3	1	....	1	....
4	....	....	....	....	....	1	12	12	13	....	12	9	17	22	10	8	10	18
1	....	4	1	7	8	31	38	82	105	4	84	62	90	127	33	64	42	97
....	....	1	....	....	....	7	2	20	18	....	15	9	17	18	6	6	1	13
...	..	....	....	....	1	6	1	5	2	....	3	1	2	5	....	2	1	2
....	....	....	1	....	1	2	2	2	13	1	9	2	7	11	....	3	2	10
....	....	....	....	....	....	....	.....	3	1	....	.....	....	1	3	....	....	2	4
....	....	....	....	....	....	1	1	.....	.....	....	.....	....	.....	.....	....	....	....	2
....	....	....	....	....	....	3	3	7	6	....	2	5	4	1	....	2	1	3
....	....	....	....	....	....	....	.....	.....	1	....	2	....	1	.....	....	1	....	....
....	....	....	....	1	....	1	.....	.....	3	....	.....	....	.....	2	....	1	....	....
..	....	....	....	....	....	....	.....	.....	1	....	.....	....	1	.....	....	....	1	1
....	....	....	....	....	....	....	.....	1	1	....	.....	4	.....	2	....	....	....	2
....	....	....	....	....	1	....	.....	2	2	....	1	1	1	1	....	2	1	3
1	....	....	....	4	....	....	.....	2	4	....	4	3	6	4	2	3	7	8
....	....	....	....	....	....	....	.....	1	.....	1	.....	....	.....	.....	....	....	..	2
....	....	....	....	....	....	....	.....	.....	.....	....	.....	....	.....	.....	....	....	1	1
....	....	1	....	....	....	....	1	2	1	....	2	....	1	1	....	3	....	2
....	....	....	....	1	....	....	.....	.....	1	....	.....	....	.....	2	....	....	....	2
....	....	....	....	....	....	....	.....	1	1	....	1	....	.....	2	1	....	....	1
....	....	....	....	....	....	1	.....	2	6	....	1	1	2	4	2	1	....	1
....	....	....	....	....	....	1	.....	3	1	1	.....	1	....	.....	....	4	1	4
....	....	....	....	....	....	....	.....	2	.....	....	.....	1	.....	.....	....	....	....	....
....	....	....	....	....	....	2	2	1	1	....	.....	1	4	5	3	1	1	1
....	....	....	....	....	1	1	1	.....	1	....	4	...	2	.....	....	....	1	1
....	....	....	....	....	....	....	1	.....	1	....	2	2	2	3	....	1	....	2
..	....	....	....	....	....	....	.....	.....	.....	....	1	....	.....	2	....	....	....	....
....	....	....	....	....	....	....	.....	.....	.....	....	.....	1	.....	1	....	1	....	....

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
HUDSON VALLEY DIS.—(*Con.*)								
Montgomery	5,259	15	34.2	11	73.5	725.0	5	....
Haverstraw	7,714	6	9.5	2	33.3	.....	....	....
Nyack	5,603	7	15.0	3	42.8	.....	....	....
Ramapo	6,600	8	14.5	1	12.5	125.0	....	1
Rest of district	275,000	333	.....	43	12.9	111.1	5	8
ADIRONDACK AND NORTHERN DISTRICT								
Totals	390,000	438	13.2	76	17.4	121.0	....	13
WATERTOWN	17,000	20	14.1	5	25.0	250.0	....	1
Ellisburg	4,223	4	11.4	0	.....	250.0	....	....
Cape Vincent	3,000	2	8.0	1	50.0	500.0	....	....
Clayton	4,250	3	8.5	1	33.3	333.3	....	....
OGDENSBURG	12,000	21	21.0	2	9.5	95.2	....	1
Gouverneur	6,000	10	20.0	2	20.0	.....	....	....
Potsdam	4,000	6	18.0	3	50.0	.....	....	....
Canton	6,013	11	20.0	1	10.0	.....	....	....
Malone	5,000	10	24.0	2	20.0	.....	....	....
Plattsburg	8,400	20	28.5	6	30.0	150.0	....	....
Glens Falls	12,500	21	20.0	3	14.3	190.0	....	....
Whitehall	4,500	.....	.....	.....	.....	.....	....	....
Fort Edward	4,500	7	18.7	1	14.2	142.8	....	....
Kingsbury	5,112	6	14.0	1	16.7	166.7	....	....
Granville	5,281	5	11.3	1	20.0	.....	....	....
Greenwich	4,500	3	.....	0	.....	333.3	....	1
Lowville	4,000	2	6.0	0	.....	500.0	....	....
Rest of district	280,000	287	12.5	47	16.4	125.4	....	10
MOHAWK VALLEY DISTRICT								
Totals	395,000	445	14.0	73	16.4	141.6	1	13
SCHENECTADY	28,791	30	12.6	5	16.7	166.7	....	....
Cobleskill	3,436	5	17.0	1	20.0	200.0	....	....
AMSTERDAM	20,000	31	18.6	8	25.8	161.3	....	1
Fort Plain	3,000	1	.....	0	.....	.....	....	....
JOHNSTOWN	7,768	13	20.1	4	30.7	75.2	....	1
GLOVERSVILLE	15,000	16	12.8	3	18.7	..	....	....
LITTLE FALLS	12,000	18	18.0	5	27.7	277.7	1	1
Herkimer	5,150	9	21.0	2	22.2	444.4	....	1
Ilion	4,057	3	9.0	1	33.3	333.3	....	....
UTICA	55,000	69	14.8	12	17.4	87 0	....	....
Whitestown	5,225	4	9.5	1	25.0	250.0	....	....
ROME	14,000	20	17.9	2	10.0	100.0	....	....
Boonville	3,513	3	11.0	0	.....	.....	....	....
Camden	3,675	2	.....	0	.....	....	....	....
Waterford	5,522	4	.....	2	50.0	.....	....	....
Mechanicville	3,000	2	8.0	1	50.0	500.0	....	....
Ballston Spa	3,527	3	10.0	1	33.3	333.3	....	....
Saratoga Springs	12,500	23	23.0	5	21.8	130.0	....	1
Rest of district	192,000	189	11.0	20	10.6	142.1	....	7
SOUTHERN TIER DISTRICT								
Totals	425,000	435	12.5	60	13.8	133.3	1	17
BINGHAMTON	45,000	54	14.3	9	16.3	222.0	....	....
Owego	6,000	5	10.0	1	20.0	200.0	....	....
Candor	3,525	2	.....	0	.....	....	....	....
Waverly	4,152	4	11.5	1	25.0	.....	....	....
ELMIRA	40,000	43	12.5	8	19.0	95.0	1	1

FOR OCTOBER—(*Continued*).

Zymotic Diseases																		
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	...	....	....	2	1	3	.....	.....	....	1	....	1	1	....	....	....	1
....	....	...	....	....	....	....	.....	.....	.....	....	1	1	1	.....	....	1	1	1
....	....	...	....	....	....	....	.....	1	.....	....	....	1	.....	1	....	....	1	3
....	....	...	....	....	....	....	.....	.....	2	....	.....	....	2	....	2	....	1	....
....	....	2	....	1	2	5	14	20	33	1	34	21	35	57	17	32	19	27
....	....	5	.	1	4	7	23	33	38	1	40	31	41	55	19	21	42	59
....	....	..	....	....	....	....	.....	.....	4	....	2	1	1	2	1	2	3	3
....	....	....	..	....	....	....	1	.....	.....	....	.....	....	.....	1	....	2	....	....
....	....	....	....	....	....	....	1	.....	.....	....	.....	....	.....	.....	....	....	..	1
....	....	....	..	....	....	....	1	.....	1	....	.....	....	.....	.....	....	1	....	....
...	....	1	....	....	....	....	.....	8	.....	....	1	2	2	3	....	1	1	1
....	....	....	....	....	....	....	.....	1	1	....	1	2	1	2	....	....	....	2
....	....	....	....	....	....	....	.....	1	.....	....	.....	.....	.....	1	1	....	1	2
....	....	....	....	....	....	....	.....	1	2	....	.....	2	3	.....	1	....	1	1
....	....	....	....	....	....	....	.....	.....	1	....	2	1	2	1	....	1	....	2
....	....	....	....	....	3	....	.....	.....	1	....	1	1	2	3	1	1	3	4
....	....	3	....	....	....	1	.....	3	1	....	4	2	1	1	1	....	2	2
....	....	....	....	....	....	....	.....	.....	.....	....	.....	.....	.....	.....	....	....	....	....
....	....	....	....	....	....	1	.....	.....	.....	....	.....	1	2	.. ..	....	....	1	2
....	....	....	....	....	....	....	1	.....	.....	....	1	....	1	1	....	1	1	....
....	....	....	....	....	....	....	.....	.....	.....	....	.....	1	1	2	....	....	....	1
....	....	....	....	....	....	....	.....	.....	.....	....	.....	....	1	1	....	.	....	....
....	....	....	....	....	1	....	.....	.....	.....	1	.....	....	.....	.....	....	....	....	....
....	...	1	....	1	....	5	19	24	27		23	18	24	37	14	12	29	38
1	....	....	...	1	3	17	28	47	47	1	37	40	38	64	16	22	29	41
....	....	....	....	....	1	3	1	4	2	....	5	4	1	4	2	....	....	3
....	....	....	....	....	....	....	1	.....	2	..	.....	....	1	.....	....	....	1	....
....	....	..	....	....	...	2	2	7	5	...	.....	...	1	5	2	2	1	3
....	....	....	....	....	....	....	.....	.....	.....	....	.....	1	.....	.....	....	....	....	....
....	....	....	....	....	....	....	.....	1	2	....	.....	1	1	3	....	....	1	3
....	...	....	....	....	....	....	.....	2	1	....	.....	1	1	4	1	2	1	3
....	....	....	....	....	....	....	3	3	1	....	1	2	.....	2	...	2	...	2
....	....	....	....	....	....	2	1	.....	.....	....	1	1	1	.....	....	1	1	....
....	....	....	....	....	1	....	.....	.....	.....	....	1	....	1	.....	....	....	....	....
....	...	....	....	....	....	5	1	10	13	....	4	6	3	7	1	2	4	3
....	....	....	....	....	....	1	.....	1	.....	....	1	.....	.....	.....	..	1	.....	....
....	....	....	...	....	....	....	2	1	3	....	3	1	2	4	....	2	2	....
....	....	....	....	....	....	....	.....	.....	.....	....	.....	....	1	2	....	....	....	....
....	....	....	....	....	....	....	.....	.....	.....	....	.....	1	.....	1	...	....	...	....
....	....	....	....	....	....	....	.....	1	.....	....	.....	....	.....	1	1	....	....	1
1	....	....	....	....	....	....	.....	.....	.....	....	.....	....	.....	1	.....	....	....	....
....	....	....	...	....	....	....	1	.....	.....	1	.....	....	.....	.....	1	....	....	....
....	....	....	....	....	....	1	1	1	1	...	3	6	1	1	1	1	1	4
....	....	....	....	1	1	3	15	16	17	....	18	16	19	29	7	9	17	14
....	....	1	....	....	4	12	23	26	44	2	35	21	30	48	26	26	48	41
....	....	....	....	....	2	5	5	3	5		4	5	7	8	1	3	4	2
....	....	....	....	....	....	....	1	1	....	....	.....	....	.....	.....	....	2	....	1
....	....	....	....	....	....	....	.....	.....	....	....	1	....	.....	1	....	....	....	....
....	....	....	....	....	....	....	.....	1	1	....	.....	....	.....	.....	....	....	1	1
....	....	....	....	....	....	2	.....	3	6	....	6	2	3	3	1	....	3	6

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
SOUTHERN TIER DIST.—(*Con.*)								
Horseheads	2,319	.....	.....	.....	.....	.....	....	....
HORNELLSVILLE	12,000	9	9.0	1	11.1	222.2	....	2
Bath	3,261	9	.....	0	.....	.....	....	....
CORNING	10,025	12	14.4	3	25.0	.....	....	....
Wellsville	5,031	4	10.0	0	.....	250.0	....	....
OLEAN	10,000	9	10.8	0	.....	.....	....	....
Salamanca	3,700	5	16.0	1	20.0	200.0	....	....
DUNKIRK	13,900	15	13.5	1	6.7	67.5	....	1
JAMESTOWN	13,627	22	14.5	7	30.0	270.0	....	1
Westfield	3,000	3	12.0	0	.....	.....	....	....
Fredonia	3,400	4	14.1	0	.....	.....	....	....
Rest of district	250,000	236	.....	28	11.9	127.1	....	12
EAST CENTRAL DISTRICT Totals	415,000	407	12.0	51	13.3	140.0	1	"18
SYRACUSE	120,000	101	8.0	19	19.0	180.0	....	4
Baldwinsville	3,040	1	.....	0	.....	.....	....	....
De Witt	5,182	4	10.0	1	25.0	.....	....	....
Cortland	8,600	10	14.0	0	.....	300.0	....	2
Homer	3,000	3	12.0	0	.....	.....	....	....
Oneida	6,100	6	12.0	1	16.7	333.3	....	....
Hamilton	4,110	4	11.8	0	.....	250.0	....	1
Cazenovia	3,808	10	.....	1	10.0	.....	....	....
Brookfield	3,235	1	.....	0	.....	.....	....	....
Norwich	6,000	7	14.0	0	.....	.....	....	....
Oneonta	8 000	7	10.5	1	14.2	.....	....	....
Worcester	2,670	.....	.....	.....	.....	.....	....	....
Cooperstown	3,000	1	.....	0	.....	.....	....	....
Walton	4,811	2	.....	0	.....	500.0	....	1
Delhi	3,000	6	24.0	1	16.7	.....	....	....
Liberty	3,500	9	.....	2	22.2	222.2	....	1
Rest of district	230,000	285	12.5	28	11.9	127.7	1	9
WEST CENTRAL DISTRICT Totals	325,000	352	13.2	33	9.4	116.5	1	8
AUBURN	35,000	33	13.2	5	15.2	181.2	....	3
ITHACA	13,460	15	13.0	2	13.3	.....	....	...
Hector	4,382	4	10.0	0	.....	250.0	....	1
Waterloo	4,350	10	27.5	3	30.0	.....	....	....
Seneca Falls	6,500	6	11.0	0	.....	16.7	....	....
GENEVA	11,800	7	7.0	2	28.5	285.7	....	....
Canandaigua	5,868	2	.....	0	.....	.....	....	....
Manchester	4,181	7	20.6	1	12.8	.....	....	....
Phelps	5,150	12	27.5	3	25.0	75.0	....	....
Penn Yan	4,800	6	15.0	1	16.7	167.7	1	....
Batavia	7,221	11	.....	0	.....	.....	....	....
Dansville	3,758	6	19.0	1	16.7	.....	....	....
Le Roy	3,000	3	12.0	0	.....	.....	....	....
Warsaw	4,700	4	10.2	0	.....	.....	....	....
Rest of district	212,000	296	18.0	15	6.6	13.3	....	4
LAKE ONTARIO AND WESTERN DISTRICT Totals	875,000	918	12.8	190	20.7	108.9	4	25
BUFFALO	360,000	371	12.7	84	22.7	108.0	3	11
TONAWANDA	9,000	9	12.0	3	33.3	.....	....	....
Amherst	4,000	4	13.0	2	50.0	.....	....	...

FOR OCTOBER—(*Continued*)

Zymotic Diseases																		
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of the urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
									1	1			2				1	2
														2	1	3	1	1
									1		2	1	1		2	3	1	1
						1		1						1			1	
								1	1		1		1	2		1	2	
							1					1			1	1		1
									2		2	1	2	1	2	1	2	1
		1					4	1	5		1	2		4				3
														1			1	1
					2	4	12	15	22	1	17	8	38	24	18	11	31	21
3		1		2	3	5	24	33	45		30	20	49	55	18	26	35	39
				1		1	12	9	15		5	4	7	12	5	6	10	10
																	1	
									1		1							2
		1							1			1	1	1			1	2
									1				2					
					1		1		2		1						1	
											1	1	1	2		1	2	1
								1	2			1			1			
								1	2				1		1	1	1	
																3		1
														1				
														1				
														3	2			
					1				3		1		1				1	2
3				1	2	3	11	23	16		21	12	35	35	10	15	18	21
3				2		10	17	22	27	1	29	19	51	70	15	21	35	21
						3		2	6		3		4	7		1	1	3
								1	1	1	1	3	1	2	2		1	2
								2					1					
								2	2		1		1	1			2	1
1											1		1	2				1
							1	1	1				1	1	1			1
											1						1	
											1		1	2	1	1	1	
						1			1			1		2	1	1	2	2
								2	2		2		2			2	1	
									1		1	1	1			1	1	
											1						2	
								1					1	2				
2				2		6	16	11	18		16	14	36	48	10	15	23	10
1		3			3	17	47	112	86	10	68	71	98	123	51	51	52	96
		1			2	5	16	55	44	7	17	31	30	49	23	24	19	35
								2						1		2	1	2
								1					1					2

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro spinal meningitis	Typhoid fever
LAKE ONTARIO AND WESTERN DISTRICT—(*Continued*)								
NORTH TONAWANDA	9,000	8	10.7	3	37.5	.....	....	....
LOCKPORT	16,068	9	.....	2	22.2	333.0	....	....
NIAGARA FALLS	16,000	20	15.0	8	40.0	200.0	....	....
Medina	4,500	5	15.0	2	40.0	.....	....	....
Albion	4,586	4	10.7	1	25.0	.....	....	...
Brockport	3,742	7	23.0	1	14.2	142.8	....	....
ROCHESTER	175,000	200	13.6	30	15.0	100.0	....	5
Palmyra	4,173	2	6.0	0	.....	.....	....	....
Newark	4,600	2	.....	0	.....	.....	....	....
Lyons	6,127	11	21.0	2	18.2	182.8	....	....
Clyde	3,000	5	20.0	3	60.0	200.0	....	1
OSWEGO	22,000	32	17.5	10	31.2	125.0	....	...
Fulton	4,214	7	20.0	1	14.2	.....	....	....
Richland	8,637	2	8.0	0	.....	.....	....	...
Rest of district	231,000	220	11.0	38	17.3	122.7	1	8
Totals for the state	7,110,000	9,280	16.0	3,175	34.2	110.8	46	202
Totals for September, 1899	.....	9,186	15.8	3,068	33.4	172.2	57	205
Totals for October, 1898	.....	9,632	16.5	2,868	30.0	140.0	37	261

THE DISTRIBUTION OF MORTALITY THROUGH THE YEAR IN NEW YORK STATE.

In the last Monthly bulletin it was shown that the most unhealthy months were those of summer and the most healthy those of the late fall. This appears clearly when the average monthly mortality ratio in New York state for the last five years is taken. A number above 100 indicates a month more unhealthy than the average; a number below 100 indicates a month more healthy than the average for the year.

MONTHLY MORTALITY RATIO IN NEW YORK STATE, 1894-1898:

January	101	May	93	September	109
February	106	June	93	October	90
March	107	July	117	November	84
April	104	August	109	December	94
Total					1,200

This table shows that there are two periods of the year which are especially unhealthy in this state, the late winter and early spring with a maximum in March, and the middle and late summer with a maximum in July. September is usually a healthy month, but the deaths in September, 1898, when the average temperature was only five degrees below that of August, brought the average of the five year period to 109.

Between these periods are two which are especially healthy, one in the late spring and early summer, and a second in late fall and early winter.

In the last Monthly bulletin the figures for 1898 were used to indicate that these two unhealthy periods in late summer and late winter were due largely to the unhealthfulness of continued hot weather for children and the unhealthfulness of continued cold weather for adults. It seems worth while to push the examination of the figures back over a five year period in order to test this inference. Accordingly the comparative mortality ratio for each month has been computed for children under five and for persons over five during each of the last five years. As explained before, a number above 100 marked an unhealthy month, and vice versa.

FOR OCTOBER—(*Continued*)

Zymotic Diseases								Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases											
....	....	....	....	....	....	....	.....	.....	.....	....	1	1	1	2	....	3	....	....
...	....	1	.	....	1	....	2	2	1	....	.....	....	2	1	....	....	....	....
....	....	....	....	....	....	....	3	1	.....	1	3	2	2	1	....	1	2	3
....	....	....	....	....	....	....	.....	.....	.....	....	.....	1	.....	.....	....	....	1	3
. ..	....	....	....	....	....	....	.....	1	.....	....	.....	1	.....	.....	....	1	....	1
....	....	....	....	....	....	1	.....	.....	1	....	.....	1	1	.....	....	....	....	3
....	....	....	....	....	....	5	10	23	22	2	18	10	26	26	19	9	6	19
...	....	....	....	....	....	....	.....	.....	.....	....	.....	....	2	.....	....	....	....	....
....	....	....	....	....	....	....	.....	.....	.....	....	.....	....	.....	.....	....	2	....	....
.....	....	....	....	...	....	....	2	.....	1	....	.....	1	1	2	2	....	2	....
....	....	....	....	....	....	...	.....	1	1	....	2	....	.....	.....	....	....	....	....
....	....	....	....	....	....	....	2	7	1	....	2	1	4	5	1	....	3	4
....	....	....	....	....	....	....	.....	.....	.....	....	1	2	1	3	....	....	....	....
....	....	....	....	....	....	....	.....	1	.....	....	.....	....	.....	.....	1	....	....	....
1	....	1	....	....	....	4	12	18	15	....	24	20	27	33	6	9	18	22
27	1	36	24	17	60	254	361	1,168	1,064	57	892	758	810	1,017	894	550	417	1195
21	....	19	34	6	85	188	972	755	947	50	1,065	646	729	937	864	537	327	1947
49	....	38	10	14	59	180	667	1,044	1,062	65	943	673	848	1,015	876	526	443	1292

1894–1898

HEALTHFULNESS OF EACH MONTH FOR CHILDREN UNDER FIVE.

Month	1894	1895	1896	1897	1898	Average
January	88	88	90	88	77	86
February	93	95	91	100	90	94
March	93	94	96	111	91	97
April	92	102	99	96	91	96
May	81	81	84	82	86	83
June	106	90	106	98	84	97
July	178	163	184	167	157	+169
August	132	139	141	133	153	140
September	116	121	103	116	143	120
October	84	83	72	67	91	93
November	66	66	66	69	65	—67
December	73	78	70	73	72	76
Total	1,200	1,200	1,200	1,200	1,200	1,200

This table shows that the deaths of children in this state in July are nearly 70 per cent above the average for the year and in August nearly 40 per cent above the average, while September, though on the average several degrees cooler than June, has an excess of infant mortality. This probably is due partly to the cumulative effect of continued heat and partly to the fact that death is often separated from its causes by a considerable period of time.

While there is no close or constant relation between temperature and death rate, yet there is a perceptible tendency for the death rate of children to be higher than the average in the months when the temperature is higher than the average.

If one compares the figures in the preceding table with those in the following, showing the comparative healthfulness of the months for adults, the differences are striking.

MONTHLY BULLETIN

HEALTHFULNESS OF EACH MONTH FOR PERSONS OVER FIVE:

Month	1894	1895	1896	1897	1898	Average
January	120	116	104	100	101	108
February	110	126	109	114	108	+113
March	107	119	114	118	104	+113
April	108	107	110	112	105	109
May	98	97	98	98	99	98
June	98	85	89	93	88	—90
July	96	85	95	89	91	91
August	85	90	1·3	88	91	94
September	89	89	94	93	104	93
October	93	94	91	102	95	95
November	94	93	87	94	98	93
December	99	98	98	101	121	103
Total	1,200	1,200	1,200	1,200	1,200	1,200

The unhealthy seasons are no longer the hot summer months but the cold winter months, from December to April inclusive, with the maximum in February and March. The figures in this table are much affected by the recurrent epidemics of influenza, which have afflicted the state and country and have probably caused more deaths than any other epidemic disease in the last half century. Thus the deaths, direct and indirect, from influenza, in this state, are set down as 1600 in February, 1895, 1500 in March of the same year, 1500 in March, 1897, 1400 in January 1894.

But even aside from this cause it is no doubt true that the cold winter months are those least favorable to the life and health of adults and elderly persons.

It may be asked whether the heat of summer is unfavorable to children all over the state or only in the cities. In the effort to get an answer to this question from the figures for New York state, the following method has been followed. The distribution of deaths by

FOR OCTOBER—(*Concluded*)

months in all the cities of over 25,000 people has been computed and that for the rest of the state separately found. The results for 1897 and 1898 are given in the following table:

Healthfulness of each month for children in the large cities and in the rest of New York state:

	Large Cities		Rest of State	
	1897	1898	1897	1898
January	83	76	97	79
February	94	88	115	94
March	112	91	100	89
April	93	91	96	91
May	80	84	81	89
June	100	87	80	−70
July	+173	+170	137	105
August	127	156	+139	138
September	112	134	126	+168
October	84	91	91	105
November	−67	−68	75	71
December	74	70	−61	81
Total	1,200	1,200	1,200	1,200
Mean variation	21	27	19	23

The preceding table suggests that the infant mortality of the summer compared with that for the entire year is nearly as great in the small cities and rural districts as it is in the great cities. The last line in the table shows the average difference between the figures for each month and the normal rate of 100. In each year the mean variation for the large cities was a little but not much greater than for the rest of the state. Another inference is indicated by these figures. The high infant mortality of the hot months comes later in the country than it does in the city, and the infant mortality in the country during September was greater than in the cities. This inference may be reserved for subsequent examination.

MONTHLY BULLETIN OF THE NEW

Abstract of reports of deaths and causes in the following

[Cities are printed in SMALL CAPS, villages in *italics* and towns in Roman

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro spinal meningitis	Typhoid fever
MARITIME DISTRICT Totals	3,826,000	5,202	16.5	1,633	31.4	97	20	77
CITY OF NEW YORK Totals	3,550,053	4,878	16.7	1,563	32.0	99	19	75
BOROUGH OF MANHATTAN	1,953,569	2,736	17.0	864	31.5	95	13	43
BOROUGH OF THE BRONX	168,537	294	21.5	87	29.6	110	1	....
BOROUGH OF BROOKLYN	1,231,548	1,582	15 6	531	33.5	96	5	24
BOROUGH OF QUEENS	134,139	172	15.6	52	30.2	150	....	4
BOROUGH OF RICHMOND	67,260	94	16.0	29	30 8	106	....	4
Oyster Bay	15,000	25	20.0	5	20.0	160	....	....
Hempstead	24,000	10	.....	2	20.0	.....	....	....
North Hempstead	8,726	10	13.6	4	40.0	.....	....	....
Southold	7,671	6	10.0	1	16.7	.....	....	....
Sag Harbor	3,000	5	20.0	0	.....	.....	....	....
Huntington	8,253	11	16.0	3	27.3	.....	....	....
Brookhaven	13,500	13	11.5	1	7.7	.....	..	....
YONKERS	42,000	55	15.3	18	32.7	36	....	....
Greenburg	12,000	16	16.0	2	12.5	62	....	....
MOUNT VERNON	15,513	16	12.5	2	12.5	.....	....	....
Port Chester	7,547	16	25.5	4	25.0	125	1	....
Sing Sing	9,500	5	.....	0	.....	.....	....	....
NEW ROCHELLE	10,000	6	.....	0	.....	.....	....	....
Peekskill	10,000	8	.....	3	37.5	250	....	....
White Plains	4,042	7	21.0	3	42.5	.....	....	....
Rest of district	90,000	115	16.0	22	19.1	104	....	2
HUDSON VALLEY DISTRICT Totals	700,000	819	14.2	132	16.1	120	7	19
ALBANY	100,000	138	16.0	30	21.7	130	1	1
COHOES	25,000	38	17.5	11	30.0	2 0	1	1
TROY	65,000	92	17.0	13	14.1	1 0	1	5
WATERVLIET	14,000	18	15.5	2	11.1	166	....	1
Green Island	4,500	3	.....	1	33.3	.....	....	....
Lansingburg	12,000	39	.....	7	18.0	359	2	4
Hoosick Falls	7,014	.....	.....	.....	.....	.....	....	....
RENSSELAER	8,000	15	22.5	4	26.6	66	....	....
COXSACKIE	3,824	5	15.7	1	20.0	200	....	....
Catskill	5,000	7	16.8	1	14.2	.....	....	....
HUDSON	10,000	12	14.5	0	.....	.....	....	....
KINGSTON	25,000	30	14.5	3	10.0	66	1	....
Ellenville	3,000	0	.....	.....	.....	.....	2	....
Marbletown	3,689	1	.....	0	.....	.....	....	....
Rosendale	6,125	8	15.5	0	.....	.....	....	....
Esopus	5,035	3	.....	1	33.3	333	....	....
Saugerties	4,237	10	.....	0	.....	300	..	1
POUGHKEEPSIE	25,000	32	15.4	6	18.8	31	....	....
Fishkill	12,000	13	13.0	2	15.3	76	....	....
Wappinger Falls	3,718	3	10.0	1	33.3	.....	....	....
NEWBURGH	36,000	38	12.5	5	13.2	52	...	1
Port Jervis	9,337	14	18.0	2	14.2	71	....	....
MIDDLETOWN	12,000	13	13.0	0	.....	154	....	....
Warwick	6,000	4	8.0	1	25.0	250	....	....
Goshen	4,646	5	13.0	1	20.0	200	...	....

YORK STATE BOARD OF HEALTH

districts, cities, villages and towns during November, 1899

type. For boundaries of *Sanitary districts* see Annual summary]

Zymotic Diseases																		
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
18	...	34	47	19	34	190	67	964	665	38	379	503	427	452	197	270	130	671
18	....	34	47	17	33	182	58	926	628	36	346	470	388	406	182	252	119	648
7	...	14	37	14	20	90	26	516	354	25	190	280	202	208	109	148	65	375
2	....	1	8	1	1	14	4	46	79	1	10	15	27	25	9	14	4	32
6	....	17	1	2	11	64	28	322	169	9	146	157	133	142	52	71	43	205
3	....	2	....	....	1	11	3	28	16	1	17	8	16	21	6	13	1	21
....	....	....	1	....	....	3	2	14	10	....	3	10	10	9	6	6	6	10
....	....	....	....	....	....	1	3	3	3	....	.....	2	3	7	....	2	1	....
....	....	..	....	....	....	....	.....	1	.....	....	2	3	1	1	1	....	1	....
....	....	....	....	....	....	....	.....	3	.....	....	1	....	.....	4	1	....	....	1
....	....	....	....	....	....	....	.....	. ....	.....	....	.....	1	1	1	....	1	1	1
....	....	....	....	....	....	....	.....	.....	.....	....	1	1	1	1	....	....	....	1
....	....	....	....	....	....	....	.....	2	.....	....	3	1	1	2	1	....	..	1
....	....	....	....	....	....	....	.....	.....	1	....	1	2	2	2	...	....	3	2
....	....	....	....	....	....	....	2	6	8	....	3	4	8	10	4	2	....	3
....	....	....	....	....	....	1	.....	2	1	....	1	1	4	2	3	....	....	1
....	....	....	....	....	....	....	.....	1	2	1	2	3	2	1	....	2	....	2
....	....	....	....	....	....	1	.....	2	3	1	1	1	.....	3	....	1	....	2
....	....	....	....	....	....	....	.....	1	2	....	.....	1	1	.....	....	....	....	....
....	....	....	....	..	....	....	.....	1	1	....	.....	1	1	1	....	1	....	....
....	....	....	....	....	...	2	.....	.....	.....	....	1	2	.....	2	....	....	....	1
....	....	....	....	....	....	....	.....	.....	2	....	2	....	1	.....	....	1	....	1
....	....	....	....	2	1	3	4	16	14	....	15	10	13	10	5	3	5	7
5	....	4	3	4	2	42	12	87	99	4	50	59	92	116	37	33	44	95
1	....	1	1	....	....	13	.....	16	16	....	7	10	15	20	9	6	5	16
....	....	....	....	1	1	3	1	4	5	...	1	1	3	4	1	2	..	9
....	....	....	....	....	....	3	1	20	11	....	3	3	13	12	3	4	1	12
....	....	1	....	....	....	....	1	3	3	....	2	2	2	.....	....	1	1	1
....	....	....	....	....	....	....	.....	1	.....	....	.....	1	.....	....	....	....	....	1
....	....	....	....	....	....	6	.....	6	1	....	3	4	3	3	....	1	1	3
....	....	....	....	....	....	....	.....	.....	.....	....	.....	.....	.....	.....	....	....	....	....
....	....	....	....	....	....	....	1	3	2	....	2	1	4	1	....	....	....	1
....	....	....	....	....	....	....	1	.....	2	....	.....	....	1	.....	1	....	....	....
....	....	....	....	....	....	....	.....	.....	2	....	.....	....	.....	2	....	....	....	3
....	....	....	....	....	....	....	.....	1	3	....	1	1	1	3	....	..	1	1
....	....	....	....	1	....	....	.....	5	7	1	3	1	2	5	2	1	....	1
....	....	....	....	....	....	....	.....	.....	.....	....	.....	.....	.....	.....	....	....	....	....
....	....	....	....	....	....	....	.....	.....	.....	....	.....	.....	1	.....	....	....	....	....
....	....	....	....	....	....	..	.....	2	.....	....	1	2	1	1	1	....	....	....
....	....	....	....	....	1	....	.....	.....	1	....	.....	....	1	.....	....	....	....	....
....	....	....	....	....	....	2	.....	.....	2	....	2	....	1	1	...	....	....	1
....	....	....	....	....	....	1	.....	1	6	....	2	4	2	6	1	....	3	6
....	....	....	...	....	....	....	1	.....	.....	....	1	1	2	3	....	1	1	3
....	....	....	....	....	....	....	.....	.....	.....	....	.....	1	.....	1	....	1	....	....
1	....	....	....	....	....	....	.....	4	7	1	3	3	3	7	1	2	3	2
....	....	....	....	....	....	1	.....	.....	2	....	4	....	3	.....	2	2	....	....
....	....	....	....	....	....	2	.....	.....	2	....	2	....	2	4	....	1	....	....
....	....	....	....	....	....	....	1	.....	....	....	.....	....	.....	.....	....	1	1	1
....	....	....	....	....	....	1	.....	.....	1	....	.....	1	.....	1	....	....	....	1

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
HUDSON VALLEY DIST.—(*Con.*)								
Montgomery	5,259	4	.....	2	50.0	500	...	....
Haverstraw	7,714	.....	.....	.....	....	.....	...	....
Nyack	5,608	6	12.8	1	16.7	166	....	....
Ramapo	6,600	6	.....	0	.....	.....	...	....
Rest of district	275,000	262	11.6	37	14.1	95	1	5
ADIRONDACK AND NORTHERN DISTRICT								
Totals	290,000	301	9.4	43	14.3	113	3	13
WATERTOWN	17,000	20	14.3	3	15.0	150	1	2
Ellisburg	4,223	7	19.0	2	28.5	142	1	....
Cape Vincent	3,000	3	12.0	1	33.3	.....	...	....
Clayton	4,250	4	11.3	0	.....	250	....	1
OGDENSBURG	12,000	9	9.0	0	.....	111	....	1
Gouverneur	6,000	6	12.0	0	.....	166	....	....
Potsdam	4,000	4	12.0	1	25.0	.....	....	....
Canton	6,018	4	8.0	0	.....	.....	....	....
Malone	5,000	5	12.0	1	20.0	600	....	....
Plattsburg	8,400	7	10.0	3	42.8	.....	....	....
Glens Falls	12,500	19	18.2	3	15.7	150	....	....
Whitehall	4,500	1	.....	0	.....	.....	....	....
Fort Edward	4,500	10	26.0	3	30.0	100	...	....
Kingsbury	5,112	.....	.....	.....	.....	.....	....	....
Granville	5,281	3	.....	0	.....	333	....	....
Greenwich	4,500	2	.....	1	50.0	500	....	....
Lowville	4,000	3	9.0	0	.....	.....	....	....
Rest of district	280,000	194	8.0	25	13.0	99	1	9
MOHAWK VALLEY DISTRICT								
Totals	395,000	399	12.3	72	18.0	169	3	6
SCHENECTADY	28,791	33	13.4	10	30.3	151	....	....
Cobleskill	3,436	3	10.5	0	.....	.....	....	....
AMSTERDAM	20,000	26	15.6	7	26.9	153	....	....
Fort Plain	3,000	.....	.....	.....	.....	.....	....	....
JOHNSTOWN	7,768	5	.....	2	40.0	.....	....	....
GLOVERSVILLE	15,000	16	13.0	2	12.5	125	....	1
LITTLE FALLS	12,000	6	6.0	1	16.6	.....	....	....
Herkimer	5,150	4	9.5	0	.....	750	....	....
Ilion	4,067	3	9.0	1	33.3	.....	....	....
UTICA	55,000	73	15.6	12	16.5	128	....	....
Whitestown	5,225	5	11.5	2	40.0	200	...	....
ROME	14,000	27	23.0	5	16.2	111	1	1
Boonville	3,512	1	.....	0	.....	.....	....	....
Camden	3,675	9	26.2	1	11.1	111	....	1
Waterford	5,523	5	11.0	0	.....	.....	....	....
Mechanicville	3,000	10	.....	6	60.0	200	1	....
Ballston Spa	3,527	3	11.0	1	33.3	.....	...	....
Saratoga Springs	12,500	13	12.5	3	23.0	76	1	....
Rest of district	192,000	157	10.0	19	12.1	63	...	3
SOUTHERN TIER DISTRICT								
Totals	425,009	353	10.1	48	13.0	113	....	15
BINGHAMTON	45,000	45	13.0	10	22.2	111	...	..
Owego	6,000	4	8.0	0	.....	250	....	1
Candor	3,525	6	20.0	0	.....	.....	.. .	....
Waverly	4,128	4	11.8	0	.....	.....	....	....
ELMIRA	40,000	33	9.8	4	12.3	182	...	2

FOR NOVEMBER—(*Continued*)

Zymotic Diseases																		
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of the urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	...	....	2	.....	1	.....	...	.....	....	1	.....	....	....	....	....
....	....	....	....	...	....	....	.....	.....	.....	....	.....	....	.....	.....	....	....	....	....
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3	....	2	2	1	....	6	5	1 18	1 25	2	13	23	1 28	41	16	15	1 25	2 31
....	....	3	....	1	2	8	4	20	44	2	19	25	30	46	13	11	34	23
....	....	....	....	....	....	..	.....	2	3	....	.....	1	1	2,	3	1	2	2
....	....	....	....	....	....	....	.....	1	2	....	.....	1	.....	.....	....	....	2	....
...	....	....	....	....	....	....	.....	1	.....	..	1	....	.....	.....	....	....	....	1
....	....	....	....	....	....	....	.....	.....	2	....	.....	....	1	.....	....	....	....	....
....	....	....	....	....	....	....	.....	.....	3	....	.....	2	.....	1	....	....	1	1
....	....	....	....	....	....	1	.....	.....	.....	....	1	...	.....	2	....	1	1	....
....	....	....	....	....	....	....	.....	.....	.....	....	.....	1	.....	3	..	....	....	....
....	....	....	....	....	....	3	.....	.....	1	...	.....	1	1	1	..	....	....	....
....	....	....	....	....	....	....	.....	.....	.....	....	.....	...	.....	1	1	....	....	....
....	....	2	....	....	....	1	.....	2	2	....	1	....	2	4	....	....	1	1
....	....	....	....	....	....	....	.....	.....	.....	....	2	....	.....	3	....	....	3	2
....	....	..	....	....	....	....	.....	.....	.....	....	1	....	.....	.....	..	....	....	....
....	....	1	...	....	....	....	.....	.....	2	....	.....	....	1	3	....	1	....	2
....	....	....	....	....	....	....	1	1	.....	....	.....	1	.....	.....	....	..	....	....
....	....	....	....	....	....	1	.....	1	.....	....	.....	....	.....	.....	....	..	....	....
....	....	....	..	....	....	....	.....	.....	.....	....	.....	2	.....	.....	....	..	1	....
....	....	....	...	1	2	2	3	12	29	2	13	16	24	26	9	8	23	14
....	....	2	....	....	1	20	9	34	41	4	31	24	42	47	32	24	38	41
....	....	....	....	....	....	2	3	2	1	1	3	2	6	3	1	3	....	6
....	....	....	....	....	....	....	.....	.....	.....	....	.....	..	.....	..	....	....	3	..
....	....	....	....	....	1	3	.....	2	3	1	1	....	1	1	2	4	2	5
....	....	....	....	....	....	....	.....	.....	.....	....	.....	....	.....	.....	....	....	....	....
....	....	....	....	....	....	....	.....	.....	1	....	.....	1	.....	.....	....	1	....	2
...	....	....	....	....	....	1	.....	1	1	....	2	2	2	1	2	1	....	2
....	....	....	....	....	....	....	.....	2	1	....	.....	1	.....	1	....	....	....	1
....	....	....	....	....	....	3	.....	.....	.....	....	.....	....	1	.....	....	....	....	....
....	....	....	....	....	....	9	.....	7	10	2	9	4	7	11	4	6	2	2
....	....	1	....	....	....	....	.....	1	.....	....	.....	....	.....	.....	1	....	1	1
....	....	....	....	....	....	....	1	2	2	....	2	....	3	2	5	3	3	2
....	....	....	....	....	....	....	.....	.....	.....	....	.....	....	1	.....	....	....	....	....
....	....	....	....	....	....	....	.....	.....	.....	....	.....	2	1	2	....	....	2	1
....	.....	..	....	....	....	1	.....	1	.....	....	.....	1	.....	.....	....	....	2	1
....	....	....	....	....	....	....	.....	1	.....	....	.....	....	.....	.....	....	....	1	....
....	....	....	....	....	....	1	.....	.....	2	....	1	1	.....	1	....	1	..	2
....	....	....	....	....	....	....	.....	1	.....	....	.....	....	.....	.....	....	....	1	....
....	....	....	....	....	....	....	.....	1	.....	....	.....	....	1	4	....	....	3	3
....	...	1	....	....	....	1	5	14	20	....	18	10	19	21	16	5	17	12
2	....	5	....	....	1	12	5	25	37	....	35	22	44	43	15	21	35	36
1	....	1	....	....	1	1	1	3	7	....	1	1	6	9	....	1	8	4
...	....	....	....	....	....	....	.....	.....	.....	....	1	....	.....	1	....	1	...	....
...	....	....	....	....	....	....	.....	.....	.....	....	1	....	2	2	....	....	1	....
....	....	....	....	....	....	....	.....	.....	1	....	1	....	.....	1	....	1	....	....
....	....	2	..	....	....	2	.....	4	7	....	2	3	1	1	2	....	1	6

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic diseases per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
LAKE ONTARIO AND WESTERN DISTRICT—*(Continued)*								
NORTH TONAWANDA	9,000	8	10.7	1	12.5	250	...	....
LOCKPORT	16,088	25	18.7	6	24.0	80	....	....
NIAGARA FALLS	16,000	16	12.0	3	18.8	187	...	3
Medina	4,500	11	26.0	0	.....	.....	....	....
Albion	4,536	4	10.5	0	.....	.....	..	....
Brockport	3,742	1	.....	0	.....	.....	...	....
ROCHESTER	175,000	154	10.2	24	15.0	71	....	4
Palmyra	4,173	6	17.0	2	33.3	.....	....	....
Newark	4,600	3	.....	0	.....	.....	....	....
Lyons	6,127	10	19.0	3	30.0	100	....	....
Clyde	3,000	2	8.0	0	.....	.. ....	....	....
OSWEGO	22,000	32	17.5	10	31.2	156	....	....
Fulton	4,214	.....	.....	.....	.....	.....	....	....
Richland	3,637	2	.....	0	.....	.....	....	....
Rest of district	231,000	193	16.0	22	11.5	72	1	6
Totals for the state	7,110,000	8,607	14.7	2,187	25.4	101	38	169
Totals for October, 1899	.....	9,280	16.0	3,175	34.2	110	46	202
Totals for November, 1898	.....	8,709	15.8	1,970	22.7	90	36	189

REMARKS—There has been no smallpox in the western part of the state since September, when a single case occurred in Horseheads, of outside origin.

November 20th, cases of smallpox were discovered in Troy and the adjacent village of Waterford. The former were reported as Syrians, arrived three weeks before as emigrants at New York; no spread occurred in Troy. The Waterford cases were not detected until too late to prevent spread, but were limited to five cases.

New Rochelle reported, November 25th, two cases of smallpox at Fort Slocum, to which they were limited and which were cared for by the government authority.

Rochester, November 27th, reported a case directly arrived from Washington, D. C., and one secondary case developed after the unusual incubative period of eighteen days. These localities are now free.

Syracuse, December 27th, reports one case, the origin of which is not yet given; this is the only case known of in the state at the end of the year.

Vaccination has, as usual, been vigorously followed in all these exposed localities and contributed chiefly to control of the disease.

The health officers throughout the state have uniformly been energetic in availing themselves of this important aid for protecting their municipalities from the spread of smallpox. A great amount of vaccination has been secured, under the stimulus of the presence of outbreaks of smallpox and by the operation of the compulsory school law. But two or three instances of untoward results following vaccination have come to our knowledge, and these, on investigation, have been found to have resulted from needless neglect.

The reported mortality for the month from all causes is 8,607, 100 less than that of November last; the average daily rate was 287 and the death rate 14 7. The average yearly mortality in this month for the past five years has been 8,288, and that of the five years prior to that nearly the same, so that the present month shows an increase of about 300 above the average.

There are, however, fewer deaths from zymotic diseases than the five year average by a total of 125, the saving being chiefly in diphtheria; 10 per cent of the deaths were from zymotic diseases. There were more deaths from scarlet fever and measles than the average.

Acute respiratory diseases caused nearly the average mortality, and the same as in the corresponding month of last year, nor is there material variations in other local diseases.

Compared with other months, the present mortality is lower than that of any preceding month. This is customary, November being uniformly the month of fewest deaths in the

FOR NOVEMBER—(*Continued*)

Zymotic Diseases																		
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	2	.....	1	.....	....	1	....	1	.....	1	....	1	1
....	....	....	....	....	....	1	1	2	1	1	3	1	2	6	1	....	3	3
....	...	...	...	....	....	...	.....	1	1	....	3	2	.....	.....	1	3	....	2
....	....		.....		....	.	.....	1	3		.....	....	2	1	1	....	1	2
....	..	....	....	....	....	...	.....	.....	2	....	.....	....	1	.....	....	....	1	....
....	....	....	....	....	..	...	.....	.....	.....	.....	.....	....	....	.....	....	....	....	1
....	...	....	....	....	...	6	1	18	19	2	12	14	21	27	5	2	9	14
....	....	....	....	....	....	....	.....	.....	.....	....	1	1	1	.....	....	....	1	2
....	....	....	....	....	....	....	.....	.....	.....	.....	.....	....	1	1	....	1	....	....
....	....	....	....	....	..	....	1	.....	1	....	2	....	.....	1	1	3	1	....
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...	....	....	...	....	....	5	. ...	2	3	....	4	2	6	2	1	1	1	5
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....	...	..	....	....	....	....	.....	.....	.....	.....	.....	....	.....	.....	....	1	1	....
....	....	....	4	....	1	....	3	13	22	2	17	17	26	25	4	11	21	19
25	....	54	75	26	47	307	132	1,274	1,027	61	642	729	832	916	370	457	412	1014
27	1	36	24	17	60	254	361	1,163	1,064	57	832	758	810	1,017	394	550	417	1195
30	1	32	18	17	52	242	165	1,288	1,049	54	625	681	918	998	380	456	451	1027

year. In a period of 10 years, during which the average daily mortality was 322, that of November for the entire period was 270; for the rest of the year the daily average was 325, showing a saving for this month of more than 1,600 as compared with the rest of the year. The diarrheal and other intestinal diseases of summer, with the attending larger mortality credited to nervous diseases, have subsided, and the typhoid fever of early autumn has begun to decrease usually, while the respiratory diseases of winter and spring, with the accompanying diseases of the urinary system, have not materially impressed the death rate.

The infant mortality, which is the average for this month, has decreased by 1,000 from that of October and constituted 25 per cent of the deaths. Diarrheal diseases caused about one-third as many deaths as were reported in October; digestive and nervous diseases 300 fewer deaths, while from acute respiratory diseases there was an increased mortality of only 100 from last month.

Diphtheria caused 50 more deaths than in October and 60 more than in November of last year. The decrease which has been pretty constant since 1894 is giving place to a moderate increase. We have reports of its epidemic prevalence in various parts of the state - localities on Long Island, in Rensselaer and Saratoga counties, in Washington and Allegany counties.

Scarlet fever and measles are both increased from last month and also from November, 1898. The former continues generally distributed and caused deaths in all the sanitary districts, though its total mortality is only 54. Measles caused 75 deaths, all occurring in the maritime and Lake Ontario and western districts, save three in the Hudson valley district.

Reports of death from grippe during the last week of the month have been received, but while its annual epidemic recurrence has no doubt taken place, it has not to a sufficient degree to materially affect the mortality of the month as estimated by its impress upon the usual groups of diseases where it commonly finds record.

In rural parts of the state the infant mortality was 12 per cent (half that of the entire state); the zymotic mortality 7 per cent against 11 per cent for the rest of the state; typhoid fever caused 2.5 per cent of the deaths, against 1.8 for the rest of the state. Of 1,500 deaths occurring in rural towns classed as "rest of district," there were 111 deaths from acute respiratory diseases, or about 7.5 per cent, which was less than one-half the percentage for the rest of the state; from consumption also the proportion was less, viz: 10.7 per cent against 13.6 per cent for the rest of the state.

MONTHLY BULLETIN OF THE NEW

Abstract of reports of deaths and causes in the following

[Cities are printed in SMALL CAPS, villages in *italics* and towns in Roman

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
MARITIME DISTRICTS Totals	3,826,000	5,631	18.0	1,895	31.3	95	21	68
CITY OF NEW YORK Totals	3,550,053	5,445	18.0	1,748	32.1	97	20	58
BOROUGH OF MANHATTAN	1,953,569	3,091	18.5	1,020	33.0	92	13	25
BOROUGH OF THE BRONX	163,537	329	23.6	91	27.6	94	2	1
BOROUGH OF BROOKLYN	1,231,548	1,757	16.8	565	32.2	102	5	26
BOROUGH OF QUEENS	134,139	177	15.5	51	29.0	141	....	3
BOROUGH OF RICHMOND	67,260	91	16.0	21	23.2	444	....	3
Oyster Bay	15,000	9	.....	2	.....	.....	....	....
Hempstead	24,000	26	13.0	3	12.5	42	....	....
North Hempstead	8,726	13	.....	2	15.2	150	....	...
Southold	7,671	6	.....	0	.....	.....	....	....
Sag Harbor	3,000	3	12.0	1	33.3	.....	....	....
Huntington	8,258	8	12.0	2	25.0	125	....	1
Brookhaven	13,500	14	12.8	2	14.2	.....	....	....
YONKERS	42,009	58	16.5	18	31.0	52	....	1
Greenburg	12,000	15	15.0	0	.....	133	....	1
MOUNT VERNON	15,513	20	15.5	3	15.0	.....	....	....
Port Chester	7,547	13	20.8	2	15.3	76	....	....
Sing Sing	9,000	13	16.3	1	7.6	150	....	1
NEW ROCHELLE	10,000	22	26.0	11	50.0	227	1	....
Peekskill	10,000	9	11.0	1	11.1	.....	....	....
White Plains	4,042	10	.....	1	10.0	.....	....	....
Rest of district	90,000	147	19.5	28	20.0	87	....	....
HUDSON VALLEY DISTRICT Totals	700,000	909	15.9	156	17.0	107	6	26
ALBANY	100,000	148	17.5	30	21.0	90	1	4
COHOES	25,000	32	15.3	12	37.5	125	....	1
TROY	65,000	101	18.3	15	15.0	160	....	7
WATERVLIET	14,000	21	18.0	5	23.8	285	....	2
Green Island	4,500	4	11.0	1	25.0	.....	....	....
Lansingburg	12,000	25	25.0	7	28.0	140	....	....
Hoosic Falls	7,014	5	.....	0	.....	.....	....	....
RENSSELAER	8,000	7	11.0	3	42.8	.....	....	....
Coxsackie	3,824	9	.....	2	22.2	222	....	1
Catskill	5,000	5	12.0	1	20.0	.....	....	....
HUDSON	10,000	19	22.8	4	21.0	100	....	....
KINGSTON	25,000	32	15.0	4	12.5	125	1	1
Ellenville	3,000	4	16.0	1	25.0	.....	....	....
Marbletown	3,689	2	.....	0	.....	.....	....	....
Rosendale	6,125	14	.....	4	28.5	70	1	....
Esopus	5,035	4	10.0	1	25.0	250	....	...
Saugerties	4,237	8	22.6	1	12.5	.....	....	....
POUGHKEEPSIE	25,000	19	.....	4	21.4	102	....	....
Fishkill	12,000	15	15.0	1	7.0	.....	....	..
Wappinger Falls	3,718	2	.....	0	.....	.....	....	..
NEWBURGH	36,000	36	12.0	10	28.0	140	....	2
Port Jervis	9,327	13	16.5	2	16.0	.....	....	....
MIDDLETOWN	12,000	19	19.0	5	26.3	105	....	1
Warwick	6,000	4	8.0	0	.....	.....	....	....
Goshen	4,646	6	15.8	1	16.7	.....	....	....

YORK STATE BOARD OF HEALTH

'districts, cities, villages and towns during December, 1899

type. For boundaries of *Sanitary districts* see Annual summary]

Zymomic Diseases																	
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
14	....	47	65	23	43	230	58	1,306	691	49	359	524	437	514	201	277	107	809
12	....	47	63	22	89	221	46	1,227	652	47	331	492	400	463	189	259	89	768
5	....	26	41	17	28	104	26	702	360	32	183	275	208	268	116	153	44	465
1	....	5	5	....	....	14	3	60	74	1	19	23	28	35	8	13	5	37
2	....	15	17	3	8	89	14	402	187	14	114	165	147	140	60	74	35	240
3	..	1	....	2	3	11	2	45	16	....	12	16	12	16	2	11	2	20
1	....	....	....	....	....	3	1	18	15	....	3	3	5	14	3	3	3	6
....	....	....	....	....	....	....	.....	1	3	....	2	....	1	.....	....	1	....	1
....	....	....	....	....	....	....	1	7	2	....	.....	4	2	3	....	....	2	5
....	....	..	....	....	....	1	1	2	2	....	1	....	4	.....	....	....	....	2
....	....	....	....	....	....	....	.....	2	.....	....	.....	....	.....	1	1	....	....	2
....	....	....	....	....	....	....	.....	1	.....	....	.....	....	.....	1	....	....	....	1
....	....	....	....	....	....	....	.....	2	1	....	.....	....	2	2	....	....	....	....
....	....	....	....	....	....	....	.....	2	.....	...	3	2	.....	2	....	1	2	2
...	...	....	....	....	1	...	1	14	11	....	3	3	6	5	3	4	1	5
....	....	...	....	....	....	1	.....	3	2	....	.....	4	1	1	....	2	....	....
....	....	...	....	....	....	...	.....	3	1	....	1	4	2	1	....	2	1	5
....	....	....	....	....	....	1	.....	2	1	....	1	..	.....	3	....	1	1	3
....	....	....	....	....	....	1	.....	3	2	....	.....	2	2	1	1	....	....	....
2	...	....	....	....	2	....	.....	3	2	....	2	.	.....	1	....	..	2	2
....	....	....	....	....	....	....	.....	3	.....	1	2	....	.....	1	....	....	1	1
....	....	...	....	....	....	....	.....	2	2	....	3	....	.....	1	....	1	....	1
....	....	....	2	1	1	5	3	24	10	1	10	13	17	28	7	6	8	11
....	1	6	1	4	10	31	12	128	107	5	58	69	105	119	38	41	55	87
....	....	2	....	....	....	6	1	19	19	1	3	15	16	21	11	6	7	16
....	....	....	....	....	....	2	1	3	4	...	1	3	4	4	....	2	....	7
....	1	...	....	....	1	5	2	19	15	1	5	5	9	10	2	4	5	10
....	....	....	....	....	....	2	2	3	2	1	.....	3	2	2	....	...	1	1
....	....	....	....	....	....	.....	.....	.....	.....	....	.....	1	1	.....	....	1	1	....
....	....	....	....	....	1	2	.....	4	7	...	4	1	3	1	...	....	....	2
....	....	....	....	....	....	....	.....	2	1	....	1	....	....	1	....	....	....	....
....	....	....	....	....	..	....	.....	1	1	....	1	....	.....	1	....	1	....	2
....	....	....	....	....	1	....	.....	.....	1	....	.....	....	3	1	1	1	....	....
....	....	....	....	....	....	....	.....	1	1	....	.....	1	.....	.....	....	1	1	....
....	....	....	....	.	1	1	.....	2	1	....	2	....	3	6	....	....	1	2
....	....	....	....	1	1	....	.....	5	3	....	3	2	5	3	3	2	....	2
....	....	....	....	....	....	....	.....	1	.....	....	1	....	1	.....	....	....	....	1
....	....	....	....	....	....	....	.....	....	.....	....	.....	....	1	1	....	....	....	....
....	....	....	....	....	....	....	.....	4	1	....	1	....	2	2	....	....	1	2
....	....	....	....	1	....	....	.....	.....	.....	....	1	1	.....	.....	....	....	....	1
....	....	....	....	....	....	....	.....	.....	.....	....	.....	2	3	1	....	2	....	....
....	....	....	....	....	1	1	.....	1	2	....	.....	....	4	6	1	....	2	1
....	....	....	....	....	....	....	.....	4	1	....	2	1	2	3	1	1	....	....
....	....	....	....	....	....	....	.....	.....	1	1	.....	.....	.....	.....	....	....	....	....
. ..	....	....	1	....	....	2	.....	7	6	....	1	2	6	4	3	....	....	3
....	....	....	....	....	1	....	.....	2	2	....	2	1	.....	3	....	....	1	2
....	....	....	....	....	....	....	.....	1	.....	....	1	2	3	3	....	1	2	4
....	....	....	....	....	....	....	.....	.....	.....	....	.....	1	2	1	....	....	....	....
....	....	....	....	....	....	....	.....	.....	.....	....	.....	....	1	1	....	....	3	1

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
MOHAWK VALLEY DIST.—(*Con.*)								
UTICA	55,000	91	18.0	10	10.0	98	....	..
Whitestown	5,225	7	16.0	0	.....	.....	....	....
ROME	14,000	14	12.0	3	21.4	70	....	....
Boonville	3,512	2	.....	1	50.0	.....	....	....
Camden	3,675	5	16.2	2	40.0	.....	....	..
Waterford	5,522	9	19.5	2	22.2	445	....	....
Mechanicville	3,000	4	16.0	0	.....	.....	....	....
Ballston Spa	3,527	2	.....	1	50.0	.....	....	....
Saratoga Springs	12,500	27	.....	4	14.7	37	...	1
Rest of district	192,000	234	14.0	27	11.5	65	1	5
SOUTHERN TIER DISTRICT Totals	425,000	456	13.5	52	11.0	60	....	13
BINGHAMTON	45,000	57	15.0	5	8.7	87	....	1
Owego	6,000	6	12.0	0	.....	.....	....	....
Candor	3,525	6	20.0	1	16.7	.....	....	....
Waverly	4,128	3	9.0	1	33.3	.....	....	....
ELMIRA	40,000	44	13.2	6	13.7	46	....	1
Montgomery	5,259	9	20.5	3	33.3	110	..	....
Haverstraw	7,714	.....	.....	.....	.....	.....	....	....
Nyack	5,603	1	.....	1	.....	.....	....	....
Ramapo	6,600	12	21.8	4	33.3	166	....	....
Rest of district	275,000	333	14.5	34	10.2	96	3	7
ADIRONDACK AND NORTHERN DISTRICT Totals	390,000	379	11.5	46	12.2	70	...	8
WATERTOWN	17,000	31	22.4	5	16.0	.....	....	....
Ellisburg	4,223	4	11.3	0	.....	.....	....	....
Cape Vincent	3,000	2	8.0	0	.....	.....	....	.. .
Clayton	4,250	7	19.7	0	.....	.....	....	....
OGDENSBURG	12,000	17	17.0	2	11.8	177	....	1
Gouverneur	6,000	5	10.0	1	20.0	.....	....	....
Potsdam	4,009	4	12.0	0	.....	.....	....	....
Canton	6,013	10	20.0	2	20.0	.....	....	....
Malone	5,080	4	10.0	1	25.0	250	..	....
Plattsburgh	8,400	12	17.0	1	8.3	165	...	....
Glens Falls	12,500	19	18.0	3	5.8	158	....	1
Whitehall	4,500	1	.....	0	.....	.....	....	....
Fort Edward	4,500	5	13.8	0	.....	.....	....	....
Kingsbury	5,112	6	14.0	2	33.3	167	....	....
Granville	5,231	7	15.8	1	14.2	.....	....	....
Greenwich	4,500	3	.....	1	33.3	65	....	....
Lowville	4,000	7	21.0	2	.....	.....	...	.. .
Rest of district	280,000	235	10.0	25	10.7	60	....	6
MOHAWK VALLEY DISTRICT Totals	395,000	516	15.4	61	11.8	68	1	9
SCHENECTADY	26,791	36	14.7	1	3.0	60	....	1
Cobleskill	3,436	6	21.0	1	16.7	.....	....	....
AMSTERDAM	20,000	15	.....	1	6.5	.....	....	....
Fort Plain	3,000	8	.....	1	12.5	125	....	1
JOHNSTOWN	7,768	11	16.8	2	18.2	90	....	1
GLOVERSVILLE	15,000	17	13.3	2	11.6	.....	....	....
LITTLE FALLS	12,000	13	13.0	1	7.7	.....	....	....
Herkimer	5,150	11	22.5	1	9.0	90	..	....
Ilion	4,057	6	18.0	1	16.7	.....	....	....

FOR DECEMBER

Zymotic Diseases																			
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
...	....	....	...	....	....	9	. ....	14	14	1	5	5	7	14	5	11	2	1
....	....	....	....	....	....	....	....	.....	1	....	1	1	1	2	....	....	....	1
....	....	....	...	....	1	....	.....	4	2	....	1	2	2	. ....	....	1	....	1
....	....	....	....	....	....	....	.....	1	.....	....	.....	.....	.....	.....	1	....	....	....
....	.	....	....	.. .	....	....	.....	.....	1	....	.....	1	1	1	....	....	....	1
....	1	1	....	....	....	1	1	.....	.....	....	.....	.....	1	.....	1	....	1	2
....	....	....	...	...	....	....	....	1	.....	....	.....	1	.....	1	1	...	....	....
....	..	....	....	....	....	....	.....	.....	.....	....	.....	.....	.....	.....	...	1	....	1
....	....	....	....	....	....	....	.....	4	2	...	1	4	3	1	2	2	4	3
....	....	....	....	....	....	4	5	29	14	3	23	13	26	34	12	6	34	26
1	....	3	2	....	....	8	4	55	47	6	44	28	70	77	28	29	45	27
....	....	2	....	....	....	2	.....	5	8	....	9	4	4	10	3	3	4	2
....	....	....	...	....	....	....	.....	1	.....	....	1	....	1	.....	....	1	2	....
...	....	....	...	....	....	....	.....	.....	1	....	1	3	.....	1	....	....	....	....
....	....	....	....	....	....	....	.....	1	.....	1	.....	.....	.....	.....	....	....	....	1
....	....	....	....	....	....	....	1	6	5	1	3	3	1	8	8	2	4	1
....	....	....	....	....	....	1	.....	1	3	....	1	....	.....	.....	1	1	1	....
....	....	....	....	....	....	....	.....	.....	....	....	.....	....	.....	.....	....	....	....	....
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....	....	....	....	....	1	....	1	3	2	....	.....	....	2	1	....	....	1	1
...	....	4	....	2	3	9	4	45	34	1	28	23	32	43	15	18	28	29
....	....	4	....	....	4	8	3	40	43	3	31	21	46	63	21	12	42	30
....	....	....	....	....	....	....	.....	3	7	..	6	....	5	1	4	1	1	3
....	....	....	....	....	....	....	.....	.....	2	...	.....	....	1	.....	1	....	....	....
....	....	....	....	....	....	....	.....	.....	.....	....	1	....	.....	.....	....	....	1	...
....	..	....	....	....	....	....	.....	1	2	....	2	....	.....	2	....	....	....	....
....	....	2	....	....	....	....	.....	.....	1	....	2	....	3	2	2	1	3	....
....	....	....	....	....	....	....	.....	.....	.....	....	.....	...	...	1	..	1	2	1
....	....	....	....	....	....	....	.....	.....	.....	....	2	....	1	1	....	....	....	....
...	....	....	....	....	....	....	.....	1	3	....	1	1	1	2	1	....	....	....
....	....	....	....	....	....	1	.....	.....	.....	....	.....	....	1	1	....	....	....	1
....	....	....	....	....	2	....	.....	1	2	....	.....	....	1	2	1	1	2	....
....	....	2	....	....	....	....	.....	7	1	....	1	1	2	2	1	....	....	1
....	....	....	....	....	....	....	.....	.....	.....	....	.....	....	.....	1	....	....	....	....
....	.	....	....	....	....	....	.....	.....	1	....	1	....	1	1	....	....	1	...
....	....	....	....	....	....	1	.....	.....	.....	....	.....	....	2	2	....	1	....	....
....	....	....	....	....	....	....	.....	.....	2	....	.....	1	.....	1	...	1	1	1
....	....	....	....	....	....	2	.....	.....	.....	....	.....	.....	.....	.....	1	....	....	....
....	....	....	....	....	....	1	.....	.....	.....	....	1	1	.....	2	....	....	....	2
...	....	....	...	....	2	4	2	27	22	3	14	17	28	42	10	6	31	21
....	1	1	....	....	1	16	6	64	45	6	42	37	63	70	24	27	49	54
....	....	..	....	....	....	1	.....	4	1	2	5	3	11	4	....	....	1	3
....	....	....	....	....	....	....	.....	1	1	....	1	....	1	.....	....	1	....	1
....	....	....	....	....	....	....	.....	3	2	....	2	1	1	3	1	1	....	1
....	....	....	....	....	....	....	.....	1	.....	....	.....	....	2	2	....	....	1	1
....	....	....	....	....	....	....	.....	.....	1	....	1	....	1	1	....	1	2	3
....	....	....	....	....	....	....	.....	1	3	....	.....	4	3	.....	....	....	2	4
....	....	....	....	....	....	....	.....	.....	3	....	.....	1	1	3	....	1	1	3
....	....	....	....	....	....	1	.....	1	.....	....	.....	....	2	3	1	2	....	1
....	....	....	....	....	....	....	.....	.....	1	....	.....	1	.....	1	....	1	1	1

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
SOUTHERN TIER DIST.—(*Con.*)								
Horseheads	3,319	4	14.5	1	25.0	.....	....	....
HORNELLSVILLE	12,000	15	15.0	1	6.6	.....	....	....
Bath	3,261	.....	.....	.....	.....	.....	....	....
CORNING	10,025	15	18.0	2	13.3	.....	....	....
Wellsville	5,033	4	10.0	0	.....	.....	....	....
OLEAN	10,000	10	12.0	1	10.0	200	....	1
Salamanca	3,700	5	16.0	1	20.0	.....	....	....
DUNKIRK	13,200	19	15.6	3	15.7	105	....	1
JAMESTOWN	18,627	24	15.5	5	20.8	.....	....	....
Westfield	3,000	1	.....	0	.....	.....	....	....
Fredonia	3,400	5	17.0	0	.....	.....	....	....
Rest of district	250,000	268	13.0	26	10.0	70	....	8
EAST CENTRAL DISTRICT Totals	415,000	460	13.2	43	9.5	67	5	13
SYRACUSE	120,000	117	11.5	11	9.3	93	....	3
Baldwinsville	3,040	6	24.0	0	.....	.....	....	....
De Witt	5,182	1	.....	0	.....	.....	....	....
Cortland	8,600	12	16.5	1	8.3	.....	....	....
Homer	3,000	6	24.0	1	16.7	.....	....	....
Oneida	6,100	9	18.0	1	11.0	110	....	1
Hamilton	4,110	7	20.5	0	.....	270	1	....
Cazenovia	3,803	10	.....	2	20.0	.....	....	....
Brookfield	3,235	5	18.5	0	.....	.....	....	....
Norwich	6,000	7	14.0	0	.....	142	....	1
Oneonta	8,000	5	.....	0	.....	.....	....	....
Worcester	2,670	1	.....	1	.....	.....	....	....
Cooperstown	3,000	3	12.0	0	.....	.....	....	....
Walton	4,811	6	15.0	0	.....	167	....	1
Delhi	3,000	4	16.0	0	.....	.....	....	....
Liberty	3,500	11	.....	1	9.0	.....	....	....
Rest of district	230,000	250	12.5	25	10.0	60	4	7
WEST CENTRAL DISTRICT Totals	325,000	312	12.0	34	10.0	68	1	4
AUBURN	30,000	34	13.5	7	20.6	118	1	1
ITHACA	13,460	12	11.0	1	8.3	.....	....	....
Hector	4,832	3	8.0	1	33.3	666	....	....
Waterloo	4,350	14	.....	3	21.4	143	....	....
Seneca Falls	6,500	6	11.0	0	.....	167	....	....
GENEVA	11,800	8	.....	0	.....	.....	....	....
Canandaigua	5,868	8	11.0	1	12.5	.....	....	....
Manchester	4,181	8	22.0	1	.....	.....	....	....
Phelps	5,150	6	14.0	0	.....	.....	....	....
Penn Yan	4,800	3	7.5	1	33.3	.....	....	....
Batavia	7,221	7	12.0	0	.....	.....	....	....
Dansville	3,758	4	12.5	2	50.0	.....	....	....
Le Roy	3,000	1	.....	0	.....	.....	....	....
Warsaw	4,700	2	.....	0	.....	.....	....	....
Rest of district	212,000	207	11.0	18	8.5	58	....	3
LAKE ONTARIO AND WESTERN DISTRICT Totals	875,000	940	12.5	221	23.5	130	5	21
BUFFALO	360,000	406	13.2	144	35.5	180	2	8
TONAWANDA	9,000	2	.....	0	.....	.....	....	....
Amherst	4,000	3	9.0	1	33.3	333	....	....

FOR DECEMBER—(*Continued*)

Zymotic Diseases																		
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrhoal)	Diseases of the urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	.....	.....	.....	....	.....	....	.....	.....	....	...	1	1
....	....	....	....	....	....	....	.....	.....	1	....	2	....	5	2	...	4	....	1
....	....	....	....	....	....	....	.....	.....	.....	....	.....	....	.....	.....	....	....	....	....
....	....	....	....	....	....	....	.....	3	3	....	1	....	1	1	....	3	2	1
....	....	....	....	....	....	....	.....	.....	.....	....	.....	....	2	.....	....	....	1	1
....	....	....	1	....	....	....	.....	2	1	....	.....	....	.....	3	1	...	1	....
....	....	....	....	....	....	..	.....	.....	.....	....	2	....	1	1	....	....	1	....
....	....	....	....	....	....	1	.....	3	.....	....	2	6	3	3	....	....	1	....
....	....	....	....	....	....	....	.....	1	3	....	3	1	5	3	....	1	3	4
....	....	....	....	....	....	....	.....	1	.....	....	.....	....	.....	.....	....	....	....	....
...	....	....	....	....	....	....	.....	.....	.....	....	1	....	1	1	1	....	1	....
1	....	1	1	....	....	5	3	32	23	4	19	12	46	44	15	15	24	15
1	....	....	....	2	3	3	4	49	38	8	42	27	62	67	28	17	48	43
....	....	....	...	1	2	1	4	14	13	2	7	9	14	15	11	1	9	11
....	....	....	....	....	....	....	.....	.....	1	....	1	....	1	1	....	....	2	...
....	..	....	....	....	....	....	.....	.....	.....	....	.....	....	.....	.....	....	....	....	1
....	....	....	....	....	....	....	.....	3	1	....	1	1	.....	1	....	1	2	2
....	....	....	....	....	....	....	.....	.....	.....	....	.....	.....	3	.....	....	....	2	1
....	....	....	....	....	....	..	.....	1	1	....	.....	1	3	1	....	....	1	....
....	..	....	....	....	....	....	.....	.....	.....	....	1	1	2	.....	....	1	1	....
....	...	....	....	....	....	....	.....	1	1	1	.....	....	1	2	..	1	2	1
....	....	....	...	....	....	....	.....	2	1	....	.....	....	1	.....	1	....	....	....
....	....	....	....	....	....	1	.....	.....	.....	....	.....	2	.....	2	....	....	....	1
....	....	....	..	....	....	....	.....	2	.....	..	.....	....	.....	2	1	....	....	....
....	....	....	....	....	....	....	.....	.....	.....	....	.....	....	.....	1	....	....	....	....
....	..	....	....	....	....	....	.....	.....	1	....	.....	....	1	1	....	....	....	....
....	....	....	....	..	....	...	.....	1	.....	....	.....	1	1	1	....	1	....	....
....	....	....	....	....	....	....	.....	.....	.....	....	.....	...	2	.....	1	....	1	....
1	....	....	....	1	1	1	.....	2	6	..	.....	1	.....	1	....	....	1	....
....	....	....	....	....	....	....	.....	23	13	5	32	11	33	39	14	12	27	26
1	....	3	2	....	1	6	3	27	28	2	18	23	42	58	25	15	26	28
....	....	....	....	....	....	2	.....	4	1	1	3	2	6	4	3	....	1	5
....	....	....	....	....	....	....	.....	.....	4	....	.....	....	2	3	....	2	....	1
....	....	1	....	....	....	....	1	.....	.....	....	.....	....	.....	.....	1	....	....	....
....	....	....	....	....	....	1	1	1	.....	....	1	....	.....	3	1	2	1	3
....	....	1	....	....	....	....	.....	.....	2	....	.....	1	.....	1	1	....	....	....
....	....	....	....	....	....	....	.....	2	.....	....	.....	....	1	2	2	....	..	1
....	....	....	...	....	....	....	.....	.....	1	...	.....	2	.....	4	....	....	....	1
....	....	....	....	....	....	....	.....	1	.....	....	.....	..	2	.....	....	1	1	....
....	....	....	....	....	....	....	.....	2	.....	....	1	1	.....	.....	1	1	2	1
....	....	....	....	....	....	....	.....	.....	.....	....	1	....	.....	1	....	....	....	1
....	....	....	....	....	....	....	.....	1	1	....	.....	....	2	3	....	....	....	....
....	....	....	....	....	....	....	.....	1	.....	..	.....	....	.....	.....	1	....	....	2
....	....	....	....	....	....	....	.....	.....	.....	....	.....	....	.....	.....	....	1	..	....
....	....	....	....	....	....	....	.....	.....	1	....	.....	....	.....	.....	....	....	....	1
1	....	1	2	....	1	3	1	18	18	1	12	16	30	39	17	9	21	14
1	....	5	18	4	10	29	28	124	89	3	54	61	116	117	51	33	65	106
....	....	5	18	....	6	14	20	81	44	1	12	27	33	41	16	18	18	42
....	....	....	....	....	....	....	.....	.....	2	....	.....	..	.....	.....	....	..	....	....
....	....	....	....	1	....	....	.....	.....	.....	....	.....	1	.....	.....	....	....	....	1

SANITARY DISTRICTS	Population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
LAKE ONTARIO AND WESTERN DISTRICT—*(Continued)*								
NORTH TONAWANDA	9,000	6	8.0	2	33.3	333	....	....
LOCKPORT	16,088	13	.....	1	7.7	.....	....	....
NIAGARA FALLS	16,000	16	12.0	3	18.5	185	....	3
Medina	4,500	7	18.6	0	.....	.....	....	....
Albion	4,536	6	15.7	1	16.7	.....	....	....
Brockport	3,742	1	.....	0	.....	.....	....	....
ROCHESTER	175,000	161	11.0	26	16.2	80	....	5
Palmyra	4,173	6	17.7	0	.....	167	....	....
Newark	4,500	5	13.0	0	.....	400	....	2
Lyons	6,127	9	17.7	0	.....	.....	....	....
Clyde	3,000	4	16.0	1	25.0	.....	....	....
OSWEGO	22,000	35	19.0	6	17.0	250	....	....
Fulton	4,214	11	.....	3	27.3	165	....	1
Richland	3,637	2	.....	1	50.0	.....	....	....
Rest of district	231,000	247	12.5	32	13.0	56	3	2
Totals for the state	7,110,000	9,833	16.5	2,441	25.0	93	39	155
Totals for November, 1899	.....	8,607	14.7	2,187	25.4	101	38	169
Totals for December, 1898	.....	10,877	19.0	2,269	21.0	70	35	156

NOTE.—Eight deaths in Geneva, three in Manchester and two in Little Falls are not included in the totals.

REMARKS.—The total mortality for December was 9,833, which is more than have been reported for either of the past three months and likewise exceeds that of May and June, but is less than for the other three months of the year. The average daily mortality this month was 317; that of the entire year was 334. There were 1,200 more deaths than in November and for the three autumn months there was a daily average of less than 300.

Compared with the corresponding month of former years, the reported mortality is less by 1,000 than in December, 1898, but the mortality of that month was only exceeded during the year by that of the summer months; the average yearly mortality for the past 10 years in December has been 9,600, or less than that of the current month.

The death rate is 16.5 per thousand population, that of the entire year being 17.3. The highest death rate of any month was that of January, viz.: 21.0, the lowest rates being those of the three autumn months.

There were 2,441 deaths under the age of five years; May and November alone had fewer deaths in early life than are reported for this month. Relatively the infant mortality was less than in any month of the year except the other two winter months of January and February; 25.0 per cent of the deaths occurred under the age of five years.

The zymotic mortality was 9.3 of the total, there having been 917 deaths from these diseases, which is 50 more than in November; the increase is in diphtheria, whooping cough, scarlet fever and measles. There were 150 more zymotic deaths than in December, 1898, the increase being in the same diseases as in November.

Diphtheria caused a larger number of deaths than in any month of the year, and about 100 more deaths than the average monthly deaths from this cause during the year. There were nearly 100 more deaths than in last December. While there is a tendency to moderate increase in the prevalence, and distribution of diphtheria the mortality from it is far below that of this month prior to the last two years and is hardly one-half that of the average of the 10 years 1886-1895. The present increase is largely in the Maritime district where the deaths from diphtheria in the last two months are much in excess of the preceding months of the year; there were 230 deaths in that district this month to 100 in the rest of the state.

FOR DECEMBER—(*Concluded*)

Zymotic Diseases																			
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseas s of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	2	.....	.....	.....	....	1	....	1	2	....	....	....	....
...	....	....	....	....	....	....	.....	1	2	....	1	1	7	.....	1	....	....	....
....	....	....	. .	....	....	....	.....	2	2	....	.....	....	1	.....	2	1	1	4
....	....	....	...	....	....	....	.. ...	1	.....	....	.....	....	.....	2	1	1	1	1
....	....	....	....	....	....	....	.....	.....	.....	....	1	....	1	1	....	....	1	2
...	....	....	....	....	....	....	.....	.....	.....	....	.. ..	....	1	.....	....	....	....	....
....	....	....	....	2	....	3	3	16	16	1	11	13	21	22	14	3	10	21
....	....	....	....	....	....	....	1	.....	.....	....	....	....	3	2	....	....	....	....
....	....	....	....	....	....	....	.....	.....	.....	....	.....	....	.....	2	....	1	....	....
....	....	....	....	....	....	....	.....	1	1	...	2	....	.....	2	3	....	....	....
....	....	....	...	....	....	....	.....	.....	.....	....	.....	....	1	1	1	....	....	1
....	....	....	....	....	....	9	.....	4	2	...	3	1	4	3	3	....	4	2
....	....	....	....	....	3	....	.....	.....	1	....	.....	....	2	1	....	1	....	2
...	....	....	....	....	....	....	.....	.....	1	...	1	....	.....	....	....	....	....	....
1	....	....	....	1	1	1	4	18	18	1	22	18	41	38	10	8	30	30
18	2	69	88	33	72	331	112	1,793	1,083	82	648	789	941	1,085	416	451	437	1184
25	....	54	75	26	47	337	132	1,274	1,027	61	642	729	832	916	370	457	412	1014
22	....	53	38	18	59	244	141	2,250	1,185	71	657	845	1,091	1,177	369	479	562	1425

There are numerous moderate outbreaks elsewhere, and they are characterized by unusual persistence. It is of practical interest to note that bacteriological tests have shown, in one recent well studied outbreak, the extensive existence of the diphtheria bacilli in the throats of well persons who came in contact with the sick. That these persons, for any reason immune to the disease, who are thus carriers of the disease germs, may distribute diphtheria and cause its spread is not doubted, and a persistent epidemic may be due to it in a measure.

Scarlet fever has continued to increase moderately since the beginning of autumn, but the 69 deaths are not above the average for the past five years for December, and are but half that of the five years preceding. The present increase is chiefly in the Maritime district.

Measles has likewise increased during the fall months, and continues to, but is not extensively distributed, and there were but 4 deaths, of the 88 from this cause, outside the Maritime and Lake Ontario and Western districts. It is less prevalent than in the spring months.

Grippe has been reported as the cause of a considerable number of deaths, but its influence on the mortality of the month can only be estimated. Of the classes of diseases in which it increases the mortality, there were from acute respiratory diseases 1,800 deaths, [redacted] increase of 500 from November; and in other local diseases there was an increase of 60 from diseases of the urinary system, 100 of the circulatory, and 170 of the nervous; likewise 170 from unclassified causes, but there was no material increase in the deaths from consumption and old age, which are usually affected. In these classes of disease there were 1,300 fewer deaths this month than in December last, when it was estimated that grippe caused 1,800 deaths; it may be said that there were 600 deaths from this cause in the current month. In rural towns 65 per cent of the deaths were from these local diseases, unclassified causes and consumption, and in the rest of the state 73 per cent.

Smallpox caused two deaths, one in Troy and one in the adjoining village of Waterford, six cases of the disease occurring in this locality as reported last month. Near the end of the month a single case developed at Amsterdam in the person of a man recently having come from the southern part of the state, its origin not being fully traced, but ultimately from an outside source. This case which has practically recovered, is the only one known to exist at the present time in the state, with the exception of cases reported from time to time in the city of New York, doubtless generally of imported origin.

SUMMARY OF MORTALITY OF THE STATE OF NEW YORK FOR THE YEAR 1899, AS PUBLISHED IN THE MONTHLY BULLETIN

Totals of Mortality of the State by Months

1899	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough
January	12,421	21.0	2,590	21.0	65	52	111	12	1	71	51	43	77
February	10,763	19.7	2,506	23.5	70	45	116	20	1	87	37	36	76
March	11,065	19.0	2,807	25.5	75	82	121	12	1	98	61	40	73
April	10,383	17.8	2,627	25.4	77	90	101	20	2	78	68	40	65
May	9,556	16.0	2,366	25.0	78	71	93	14	5	76	85	45	57
June	9,433	16.1	3,104	33.0	145	62	90	22	7	71	102	31	73
July	11,291	18.7	4,819	42.6	238	56	94	34	1	45	82	21	101
August	10,003	17.1	3,696	37.0	215	64	157	23	.....	26	49	15	120
September	9,188	15.8	3,068	33.4	172	57	205	31	.....	19	34	6	85
October	9,280	16.0	3,175	34.2	110	46	202	27	1	36	24	17	60
November	8,607	14.7	2,187	25.4	101	38	169	25	.....	54	75	26	47
December	9,833	16.5	2,441	25.0	93	39	155	18	2	69	88	33	72
Totals for the year	121,821	17.3	35,386	29.0	120	702	1,604	248	21	730	756	353	886
Average for past 10 years	119,373	17.2	40,095	35.0	170	577	1,650	527	78	1,869	1,077	340	1,057
Totals for 1899	120,972	18.0	37,113	30.2	186	695	1,810	404	1	837	838	287	1,155

TOTALS OF MORTALITY OF THE STATE BY MONTHS—(*Concluded*)

1899	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
January	255	127	2 965	1,304	76	735	818	1,116	1,336	351	400	917	1,553
February	236	101	2,329	1,204	64	651	765	1,045	1,200	320	412	710	1,308
March	220	126	2,145	1,284	81	726	838	1,052	1,290	418	419	588	1,390
April	197	138	1,895	1,187	93	760	820	997	1,206	346	430	532	1,318
May	203	122	1,389	1,169	92	716	768	912	1,117	359	555	484	1,249
June	236	686	883	1,028	76	869	709	746	1,087	403	661	409	1,192
July	193	2,068	748	1,076	70	1,428	755	690	981	396	645	402	1,405
August	171	1,535	599	1,034	75	1,091	679	786	955	391	576	433	1,271
September	163	972	755	947	50	1,065	646	729	937	366	537	327	1,245
October	254	361	1,163	1,064	57	832	753	810	1,017	394	550	417	1,195
November	307	132	1,274	1,027	61	612	729	832	916	370	457	412	1,014
December	331	112	1,793	1,088	82	648	789	941	1,065	416	451	437	1,184
Totals for the year	2,786	6,480	17,938	13,412	877	10,163	9,064	10,606	13,177	4,533	6,093	6,068	15,324
Average for past 10 years	5,061	8,674	17,588	13,124	990	8,610	7,000	9,105	12,625	3,408	5,538	5,770	15,210
Totals for 1898	2,612	8,499	16,350	12,979	920	10,101	8,641	10,511	13,812	4,385	6,520	5,524	14,641

TOTALS OF MORTALITY IN THE SANITARY DISTRICTS FOR THE YEAR

DISTRICTS	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough
Maritime	70,384	18.4	25,751	36.5	129	414	578	185	15	550	600	241	565
Hudson valley	11,854	17.0	2,499	21.0	124	84	318	31	1	26	53	30	75
Adirondack and Northern	5,332	14.0	994	18.6	109	37	139	4	.....	19	2	10	44
Mohawk valley	6,087	15.5	1,060	17.4	95	32	90	3	1	13	3	12	52
Southern tier	5,930	14.0	860	15.0	90	30	121	3	.....	28	11	6	39
East central	5,667	14.0	788	14.0	80	22	107	5	.....	14	5	13	38
West central	4,565	14.0	568	12.5	76	25	50	8	.....	21	9	9	7
Lake Ontario and Western	11,981	13.7	2,847	24.0	128	58	201	9	1	59	73	32	66

TOTALS OF MORTALITY IN THE SANITARY DISTRICTS FOR THE YEAR—(*Continued*)

DISTRICTS	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
Maritime	2,008	3,905	11,264	8,546	529	6,309	5,813	4,788	6,355	2,302	3,639	1,594	10,281
Hudson valley	231	625	1,541	1,313	62	822	756	1,251	1,646	415	582	765	1,297
Adirondack and Northern	54	270	693	525	39	402	319	552	669	212	207	586	549
Mohawk valley	114	256	807	549	45	468	431	691	803	255	284	555	624
Southern tier	75	225	699	485	45	506	374	787	792	280	295	631	548
East central	47	195	744	485	41	464	353	719	763	310	275	581	507
West central	60	159	567	395	28	355	246	635	697	213	211	486	389
Lake Ontario and Western	197	845	1,623	1,114	93	837	773	1,231	1,353	548	600	870	1,198

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